ED 323-90-4: Elementary Math Methods II
School of Education & Behavioral Sciences
Winter 2021 / 3 Credits
Monday, Wednesday, Friday 8:30 – 9:20 pm
Computer 2

Instructor:	Dr. Travis Mukina	**TA:**	TBD
Email:	travis.mukina@chaminade.edu	**Office Hours/Zoom:**	By Appointment
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Learning Materials:

- **Textbook**: J.A. Van DeWalle, K. Kary, J.M. Bay-Williams (2016). Elementary and Middle School Mathematics: Teaching Developmentally. 10th ed. Pearson. ISBN: 9780134802084
- **Computer Folder/Google Drive/3-Ring Binder**: This should be comprised of provided handouts, class activities, and all assignments.

Additional Resources:

- Suggested Mathematical Research Articles [provided in each chapter]

Essential Question(s):

1. What are the qualities needed to learn and grow as a professional teacher of mathematics?
2. What does it mean to do mathematics?
3. Which teaching practices related to problem solving support mathematical learning for all students?

Course Catalog Description:
This course provides an overview and applications of best practice mathematics instructional approaches, strategies, techniques, and assessment methods. Math concepts for students in grades 3 through 6 are explored using hands-on and problem-solving approaches.
Prerequisite: Pass Praxis I or 9 hours of math credit, ED 220, ED 221, ED 322

Mission Statement:
The mission of the education division is to foster the education of teachers and leaders in education through programs based in the liberal arts tradition, Catholic Marianist's values, current research, and best practices.

Marianist Values:

1. Educate for Formation in Faith
2. Provide an Integral Quality Education
3. Educate in Family Spirit
4. Educate for Service, Justice, and Peace
5. Educate for Adaptation and Change

WASC Core Competencies:

1. Written Communication
2. Oral Communication
3. Quantitative Reasoning
4. Critical Thinking
5. Information Literacy

Program Learning Outcomes (PLOs):

1	Apply knowledge of learner development, learner differences, diverse students and the learning environment to optimize learning for Elementary students.
2	Describe central concepts, tools of inquiry and structures of the subject matter disciplines for Elementary students.
3	Utilize formative and summative assessments, to determine, select, and implement effective instructional strategies for Elementary students.
4	Analyze the history, values, commitments, and ethics of the teaching profession within the school community.
5	Explain the Marianist tradition of providing an integral, quality education within diverse learning communities.

Course Learning Outcomes (CLOs):

1	Students will be able to design real-world mathematics lessons that reflect appropriate consideration of student needs, objectives to be achieved, content to be taught while allowing exploration, conjectures, and logical reasoning.
2	Students will be able to use problem-solving skills to investigate real-life mathematical situations, and communicate mathematical ideas with others verbally, numerically, symbolically, graphically, and/or geometrically.
3	Students will be able to analyze and implement various approaches, strategies, and materials for teaching upper elementary mathematics.

Alignment of Learning Outcomes:

	CLO 1	**CLO 2**	**CLO 3**
Marianist Values	-Provide an integral and quality education -Educate for adaptation and change	-Provide an integral and quality education -Educate for adaptation and change	-Provide an integral and quality education -Educate for adaptation and change
WASC Core Competencies	-Written Communication -Quantitative Reasoning -Critical Thinking	-Written Communication -Oral Communication -Quantitative Reasoning -Critical Thinking	-Written Communication -Oral Communication -Quantitative Reasoning -Critical Thinking
Program Outcomes	1, 2, 3	1, 2	1, 2
Essential Questions	1, 2, 3	1, 2, 3	1, 2, 3

Assessment:
Since this course is online, the dates noted are permanent. Read the textbook sections before you turn in assignments as indicated on the schedule at the end of this syllabus. The assignments described below are each designed to contribute in a different and significant way to your knowledge and experience relative to diagnosis and remediation of mathematics, and to teaching elementary mathematics. It will be your responsibility to turn in all assignments on time, as late assignments are not accepted. Feedback and grades on all assignments are provided within 7 days of submission.

1. Class Participation – 10% of Final Grade **[CLO 2 & 3]**
Due: Ongoing evaluation by instructor throughout the semester
1: Low Participation 2: Majority Participation 3: Full Participation
Your cooperation and active participation are necessary to facilitate this course asynchronously, including being actively involved in completing all Number Talks Discussions. You also have a responsibility to be responsive and participate fully in all asynchronous activities. It is important that you listen to the ideas of others and respect their thoughts. Your grade will be determined based a holistic evaluation of your professionalism and participation.

2. Problem-Solving Sets – 40% of Final Grade **[CLO 2 & 3]**
Due: After the Completion of Every Chapter
10 points each
Each chapter, you are required to complete 5 questions from the topics covered in those chapters using strategies that elementary level students might use to complete them. These questions require detailed explanation of thought processes and, sometimes, mathematical drawings to show ideas. These assignments are designed to prepare you for understanding how to teach problems conceptually while using multiple strategies.

3. Mathematical Teaching Philosophy – 20% of Final Grade **[CLO 3]**
Due: Week 12
25 points
Concluding this semester, you will develop your personal mathematics teaching philosophy to sum up all your mathematics education courses in this program. Your mathematical teaching philosophy must be in APA format, include at least 2 scholarly references, and cannot be more than 1 single-spaced page.

4. Three-Act Fraction Task – 30% of Final Grade **[CLO 1]**
First Submission Due: End of Week 6
Second Submission Due: End of Week 11
Final Submission Due: End of Week 15
45 points
Your Three-Act Task must focus on one of the content area of fractions. Task information, templates, and the scoring rubric are on Canvas. You will submit pieces of the task for feedback before you submit the full, completed task at the end of the course.

Grading Scale	
90 – 100 %	A
80 – 89 %	B
70 – 79 %	C
60 – 69 %	D
0 – 59 %	F

Course Attendance Policy:
As stated in the Chaminade University Catalog, students are expected to attend all classes for courses in which they are registered. Students must follow the attendance policy as stipulated in the syllabus of Education Division courses. Penalties for not meeting the attendance requirements may result in lowering of the grade, withdrawal from the course, or failing the course.

1. Excused Absences.

1.1. Since it is expected that students will participate in all class sessions, excused absences are only granted in exceptional situations where the student provides evidence to the instructor. Examples would include illness (with verification by a doctor) or the death of a close family member. Students should notify their instructors when a situation prevents them from attending class and make arrangements to complete missed assignments. *While notification of the instructor by a student that he/she will be absent is courteous, it does not necessarily mean the absence will be excused.*

1.2. In cases where excused absences constitute a significant portion of a course's meetings (e.g., more than 20% of on-ground course meetings, or a significant portion of online or hybrid courses), the instructor should refer the case to the Dean with a recommendation on how the case should be handled (e.g., withdrawal or incomplete).

2. Unexcused Absences. Chaminade University policy states that in cases where unexcused absences are equivalent to more than a week of classes the instructor has the option of lowering the grade. In the Education Division, we have added detailed guidelines to cover different types of courses and class schedules:

2.1. On-Ground courses: Missing more than 2 weeks of class (6 classes) will result in an automatic lowering of one letter grade after final grade is calculated.

2.2. Online courses and online portion of hybrid courses: The instructor will specify and enforce expectations for online participation and receipt of assignments appropriate to the design of the course. For online/hybrid courses failure to log in for one week is equivalent to an absence in a traditional on-ground course. Two weeks of not logging in constitutes grounds for removal of the student from the course.

3. Additional Notes.

3.1. If a student does not logon to an online or hybrid course for the first two weeks, the instructor should notify the Dean and the student will be withdrawn from the course.

3.2. Any student who stops attending an on-ground course or stops participating in an online course without officially withdrawing may receive a failing grade.

University Policies

Academic Honesty Statement: Violations of the Honor Code are serious. They harm other students, your professor, and the integrity of the University. Alleged violations will be referred to the Office of Judicial Affairs. If found guilty of plagiarism, a student might receive a range of penalties, including failure of an assignment, failure of an assignment and withholding of the final course grade until a paper is turned in on the topic of plagiarism, failure of the course, or suspension from the University.

Violations of Academic Integrity: Violations of the principle include, but are not limited to:

- Cheating: Intentionally using or attempting to use unauthorized materials, information, notes, study aids, or other devices in any academic exercise.
- Fabrication and Falsification: Intentional and unauthorized alteration or invention of any information or citation in an academic exercise. Falsification is a matter of inventing or counterfeiting information for use in any academic exercise.

- Multiple Submissions: The submission of substantial portions of the same academic work for credit (including oral reports) more than once without authorization.
- Plagiarism: Intentionally or knowingly presenting the work of another as one's own (i.e., without proper acknowledgment of the source).
- Abuse of Academic Materials: Intentionally or knowingly destroying, stealing, or making inaccessible library or other academic resource materials.
  Complicity in Academic Dishonesty: Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

Plagiarism includes, but is not limited to:

- Copying or borrowing liberally from someone else's work without his/her knowledge or permission; or with his/her knowledge or permission and turning it in as your own work.
- Copying of someone else's exam or paper.
- Allowing someone to turn in your work as his or her own.
- Not providing adequate references for cited work.
- Copying and pasting large quotes or passages without properly citing them.

Title IX Compliance: Chaminade University of Honolulu recognizes the inherent dignity of all individuals and promotes respect for all people. Sexual misconduct, physical and/or psychological abuse will NOT be tolerated at CUH. If you have been the victim of sexual misconduct, physical and/or psychological abuse, we encourage you to report this matter promptly. As a faculty member, I am interested in promoting a safe and healthy environment, and should I learn of any sexual misconduct, physical and/or psychological abuse, I must report the matter to the Title IX Coordinator. If you or someone you know has been harassed or assaulted, you can find the appropriate resources by visiting Campus Ministry, the Dean of Students Office, the Counseling Center, or the Office for Compliance and Personnel Services.

Disability Access: If you need individual accommodations to meet course outcomes because of a documented disability, please speak with me to discuss your needs as soon as possible so that we can ensure your full participation in class and fair assessment of your work. Students with special needs who meet criteria for the Americans with Disabilities Act (ADA) provisions must provide written documentation of the need for accommodations from the Counseling Center by the end of week three of the class, in order for instructors to plan accordingly. If a student would like to determine if they meet the criteria for accommodations, they should contact the Kokua Ike Coordinator at (808) 739-8305 for further information (ada@chaminade.edu).

Course Outline (Winter 2021)

***The professor reserves the right to make adjustments to this outline to better accommodate student needs.**

Week # Date	**Class Description** [Assigned readings completed BEFORE class]	**Assignments Due by Midnight**
Week 1 January 25th – 31st	Introduction to Course & Syllabus Chapter 14: Developing Fraction Concepts [Pages 337 – 359] *Suggested Research Article*: • "Ten Practical Tips for Making Fractions Come Alive and Make Sense" by Clarke, Roche, & Mitchell *Number Talks Discussion:* • What is 3/4 of 12? Using a Story Context	January 31st • NTD: What is 3/4 of 12?
Week 2 February 1st – 7th	Chapter 14: Developing Fraction Concepts [Pages 359 – 371] *Number Talks Discussion:* • Comparing 24/50 and 21/40	February 7th • NTD: Comparing 24/50 and 21/40 • Problem-Solving Set (Chap. 14)
Week 3 February 8th – 14th	Chapter 15: Developing Fraction Operations [Pages 373 – 385] *Suggested Research Article*: • "The Role of Representations in Fraction Addition and Subtraction" by Cramer, Wyberg, & Leavitt *Number Talks Discussion:* • 3/4 - 3/8: Developing Subtraction Strategies	February 14th • NTD: 3/4 – 3/8
Week 4 February 15th – 21st	Chapter 15: Developing Fraction Operations [Pages 386 – 403] *Suggested Research Article*: • "Measurement and Fair-Sharing Models for Dividing Fractions" by Gregg & Gregg *Number Talks Discussion:* • 1 ÷ 3/8: Developing Division Strategies	February 21st • NTD: 1 ÷ 3/8 • Problem-Solving Set (Chap. 15) • Three-Act Fraction Task Information & Understanding
Week 5 February 22nd – 28th	Chapter 16: Developing Decimal and Percent Concepts and Decimal Computation [Pages 405 – 434] *Suggested Research Article*: • "Decimal Fractions" by Martinie *Number Talks Discussion:* • Placing 0.9, 0.13, 0.255 on the Number Line	February 28th • NTD: Placing Decimals
Week 6 March 1st – 7th	Chapter 16: Developing Decimal and Percent Concepts and Decimal Computation [Pages 405 – 434]	March 7th • NTD: Percentages • Problem-Solving Set

	Number Talks Discussion: • 1/4 x 1/3: Connecting Fractions to Percentages	(Chap. 16) • First Submission of Three-Act Fraction Task
Week 7 March 8th – 14th	Chapter 17: Ratios, Proportions, and Proportional Reasoning [Pages 435 – 459] *Suggested Research Article*: • "Multiple Ways to Solve Proportions" by Ercole, Frantz, & Ashline	March 14th
Week 8 March 15th – 21st	Chapter 17: Ratios, Proportions, and Proportional Reasoning [Pages 435 – 459]	March 21st • Problem-Solving Set (Chap. 17)
Week 9 March 22nd – 28th	Chapter 18: Developing Measurement Concepts [Pages 460 – 497]	March 28th
Week 10 March 29th – April 4th	Chapter 18: Developing Measurement Concepts [Pages 460 – 497]	April 4th • Problem-Solving Set (Chap. 18)
Week 11 April 5th – 11th	Chapter 19: Developing Geometric Thinking and Geometric Concepts [Pages 500 – 541] *Suggested Research Article*: • "Is a Rectangle a Square?" by Renne	April 11th • Second Submission of Three-Act Fraction Task
Week 12 April 12th – 18th	Chapter 19: Developing Geometric Thinking and Geometric Concepts [Pages 500 – 541] *Suggested Research Article*: • "Prisms and Pyramids: Constructing Three-Dimensional Models to Build Understanding" by Koester	April 18th • Problem-Solving Set (Chap. 19)
Week 13 April 19th – 25th	Chapter 13: Algebraic Thinking, Equations, and Functions [Pages 299 – 335] *Suggested Research Article*: • "Teaching Algebra Without Algebra" by Kalman	April 25th • Mathematical Teaching Philosophy
Week 14 April 26th – May 2nd	Chapter 13: Algebraic Thinking, Equations, and Functions [Pages 299 – 335]	May 2nd • Problem-Solving Set (Chap. 13)
Week 15 May 3rd – 9th	Work on Three-Act Fraction Tasks	May 9th • Final Submission of Three-Act Fraction Task