ED 323-01-1: Elementary Math Methods II
School of Education & Behavioral Sciences
Chaminade University Honolulu
Spring 2022 / 3 Credits
Brogan Hall 101
Tuesday & Thursday 11:30 am – 12:50 pm

Instructor: Dr. Travis Mukina
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Office Location: Brogan 132
Office Hours: By Appointment

Learning Materials:

- **Textbook (Required)**: J.A. Van DeWalle, K. Kary, J.M. Bay-Williams (2016). Elementary and Middle School Mathematics: Teaching Developmentally. 10th ed. Pearson. ISBN-10: 013480208
- **Textbook (Required)**: Parrish, S., & Dominik, A. (2016). *Number talks: Fractions, decimals, and Percentages: A Multimedia professional learning resource*. Math Solutions. ISBN-10: 1935099752
- **GroupMe App**: A way to stay up-to-date with all class routines, assignments, and questions between you, your professor, and your classmates.
- **Computer Folder/Google Drive/3-Ring Binder**: This should be comprised of provided handouts, class activities, and all assignments.

Additional Resources:

- Common Core State Standards for Mathematics:
  - http://www.corestandards.org/wp-content/uploads/Math_Standards1.pdf
- 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 – 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

Course Overview:
This is the second elementary math methods course to provide you insight on how to teach different strategies to students in grades 3 – 6 on how to solve problems conceptually and procedurally.

Marianist Values:
This class represents one component of your education at Chaminade University of Honolulu. An education in the Marianist Tradition is marked by five principles and you should take every opportunity possible to reflect upon the role of these characteristics in your education and development:

1. Education 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

Native Hawaiian Values:
Education is an integral value in both Marianist and Native Hawaiian culture. Both recognize the transformative effect of a well-rounded, value-centered education on society, particularly in seeking justice for the marginalized, the forgotten, and the oppressed, always with an eye toward God (Ke Akua). This is reflected in the ʻOlelo Noʼeau (Hawaiian proverbs) and Marianist core beliefs:

1. Educate for Formation in Faith (Mana) E ola au i ke akua (ʻŌlelo Noʻeau 364) May I live by God
2. Provide an Integral, Quality Education (Naʼauao) Lawe i ka maʻalea a kūʻonoʻono (ʻŌlelo Noʻeau 1957) Acquire skill and make it deep
3. Educate in Family Spirit (ʻOhana) ʻIke aku, ʻike mai, kōkua aku kōkua mai; pela iho la ka nohana ʻohana (ʻŌlelo Noʻeau 1200) Recognize others, be recognized, help others, be helped; such is a family relationship
4. Educate for Service, Justice and Peace (Aloha) Ka lama kū o ka noʻeau (ʻŌlelo Noʻeau 1430) Education is the standing torch of wisdom
5. Educate for Adaptation and Change (Aina) ʻAʻohe pau ka ʻike i ka hālau hoʻokahi (ʻŌlelo Noʻeau 203) All knowledge is not taught in the same school

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 -Oral Communication -Quantitative Reasoning -Critical Thinking	-Written Communication -Oral Communication -Quantitative Reasoning -Critical Thinking	-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:
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. Always be prepared to effectively participate to class discussions, analyze the thinking of others in class, and clearly explain your thinking in every assignment. 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. Number Talks Reflections (NTR) – 20% of Final Grade **[CLO 2 & 3]**
Modules 1, 2, 3, 4, & 5
5 points each
After reading specific Number Talks pages in the Parrish & Dominick textbook and watching the corresponding classroom videos, you will submit reflections about what you saw by responding to provided questions.

2. Problem-Solving Sets (PSS) – 30% of Final Grade **[CLO 2, & 3]**
Modules 1, 3, 4, 5, 6, 7, & 8
10 points per set
During specific chapters, you will complete five questions from each chapter's content. These questions will require detailed explanation of thought processes and mathematical drawings to show solutions.

3. Three-Act Fraction Task – 30% of Final Grade **[CLO 1]**
Information & Understanding: Module 2
First Submission: Module 3
Second Submission: Module 6
Final Submission: Module 9
45 points
You will create another Three-Act Task, but this time it must focus on a fractional concept. You will submit parts of the task during specific modules for feedback before you submit the full, completed task in the final module.

4. Mathematical Teaching Philosophy – 20% of Final Grade **[CLO 3]**
Module 7
25 points
As a culminating assignment, you will write your personal mathematics teaching philosophy that sums up all your mathematics education courses you have taken in your elementary education program here at Chaminade.

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

A - Outstanding scholarship and an unusual degree of intellectual initiative
B - Superior work done in a consistent and intellectual manner
C - Average grade indicating a competent grasp of subject matter
D - Inferior work of the lowest passing grade, not satisfactory for fulfillment of prerequisite course work
F - Failed to grasp the minimum subject matter; no credit given

Hardware Requirements: Canvas is accessible from both PC and Mac computers with a reliable Internet connection. You will also need to be able to access audio and video files. Subsequently, you should have access to speakers or headphones that allow you to hear the audio.

Software Requirements: You will need to have some ability to listen to audio in an mp3 format, watch videos in mp4 format, stream online videos, and read .pdf files. There are a number of free software online that can be downloaded for free. If you need assistance with locating software please feel free to contact the Chaminade Help Desk at helpdesk@chaminade.edu or (808) 735-4855.

Technical Assistance for Canvas Users:

- Search for help on specific topics or get tips in Canvas Students
- Live chat with Canvas Support for students
- Canvas Support Hotline for students: +1-833-209-6111
- Watch this video to get you started
- Online tutorials: click on "Students" role to access tutorials
- Contact the Chaminade IT Helpdesk for technical issues: helpdesk@chaminade.edu or call (808) 735-4855

Tutoring and Writing Services:
Chaminade is proud to offer free, one-on-one tutoring and writing assistance to all students. Tutoring and writing help is available on campus at Kōkua 'Ike: Center for Student Learning in a variety of subjects (including, but are not limited to: biology, chemistry, math, nursing, English, etc.) from trained Peer and Professional Tutors. Please check Kōkua 'Ike's website (https://chaminade.edu/advising/kokua-ike/) for the latest times, list of drop-in hours, and information on scheduling an appointment. Free online tutoring is also available via TutorMe. TutorMe can be accessed 24/7 from your Canvas account. Simply click Account – Notifications – TutorMe. For more information, please contact Kōkua 'Ike at tutoring@chaminade.edu or 808-739-8305.

Course Policies

Grades of "Incomplete:"
This policy on incomplete grades aligns with the same University policies.

Writing Policy:
For any writing assignments, please use APA format. Please refer to https://apastyle.apa.org for any specific style and grammar guidelines questions.

Instructor and Student Communication:
Questions for this course can be emailed to the instructor at travis.mukina@chaminade.edu, or sent a direct message on Canvas. Online and/or in-person meetings can be arranged. Response time will take place up to 24 hours.

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 Kōkua 'Ike: Center for Student Learning 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 Kōkua 'Ike Coordinator at (808) 739-8305 for further information (ada@chaminade.edu).

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.

Attendance Policy:
The following attendance policy is from the 2020-2021 Academic Catalog.

Students are expected to attend regularly all courses for which they are registered. Student should notify their instructors when illness or other extenuating circumstances prevents them from attending class and make arrangements to complete missed assignments. Notification may be done by emailing the instructor's Chaminade email address, calling the instructor's campus extension, or by leaving a message with the instructor's division office. It is the instructor's prerogative to modify deadlines of course requirements accordingly. Any student who stops attending a course without officially withdrawing may receive a failing grade.

Students with disabilities who have obtained accommodations from the Chaminade University of Honolulu ADA Coordinator may be considered for an exception when the accommodation does not materially alter the attainment of the learning outcomes.

Federal regulations require continued attendance for continuing payment of financial aid. When illness or personal reasons necessitate continued absence, the student should communicate first with the instructor to review the options. Anyone who stops attending a course without official withdrawal may receive a failing grade or be withdrawn by the instructor at the instructor's discretion.

Academic Conduct Policy:
From the 2019-2020 Undergraduate Academic Catalog (p. 39):
Any community must have a set of rules and standards of conduct by which it operates. At Chaminade, these standards are outlined so as to reflect both the Catholic, Marianist values of the institution and to honor and respect students as responsible adults. All alleged violations of the community standards are handled through an established student conduct process, outlined in the Student Handbook, and operated within the guidelines set to honor both students' rights and campus values.

Students should conduct themselves in a manner that reflects the ideals of the University. This includes knowing and respecting the intent of rules, regulations, and/or policies presented in the Student Handbook, and realizing that students are subject to the University's jurisdiction from the time of their admission until their enrollment has been formally terminated. Please refer to the Student Handbook for more details. A copy of the Student Handbook is available on the Chaminade website.

For further information, please refer to the Student Handbook, which is linked annually on the following webpage: https://chaminade.edu/current-students/

Credit Hour Policy:
The unit of semester credit is defined as university-level credit that is awarded for the completion of coursework. One credit hour reflects the amount of work represented in the intended learning

outcomes and verified by evidence of student achievement for those learning outcomes. Each credit hour earned at Chaminade University should result in 45 hours of engagement. This equates to one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester, 10-week term, or equivalent amount of work over a different amount of time. Direct instructor engagement and out-of-class work result in total student engagement time of 45 hours for one credit.

The minimum 45 hours of engagement per credit hour can be satisfied in fully online, internship, or other specialized courses through several means, including (a) regular online instruction or interaction with the faculty member and fellow students and (b) academic engagement through extensive reading, research, online discussion, online quizzes or exams; instruction, collaborative group work, internships, laboratory work, practica, studio work, and preparation of papers, presentations, or other forms of assessment. This policy is in accordance with federal regulations and regional accrediting agencies.

Course Schedule (Spring 2022)

Module # Dates	**Module Description**	**Assignments Due by End of Module**
Module 1 January 10th – 23rd	*Van De Walle Textbook Reading:* [Pages 337 – 372] • Chapter 14: Developing Fraction Concepts *Number Talks Textbook Reading*: • Introduction: Why Fractions, Decimals, and Percentages? [Pages 1 – 9] • Chapter 3: What Are the Big Ideas with Rational Numbers? [Pages 63 – 71] • Chapter 4: Number Talks to Help Students Build Fractional Reasoning [Pages 72 – 111] *Suggested Research Article(s)*: • "Ten Practical Tips for Making Fractions Come Alive and Make Sense" by Clarke, Roche, & Mitchell	• GroupMe Registration • NTR (Intro, Chap. 3 & 4) • PSS (Chap. 14)
Module 2 Jan 24th – Feb 6th	*Van De Walle Textbook Reading:* [Pages 373 – 385] • Chapter 15: Developing Fraction Operations *Number Talks Textbook Reading*: • Chapter 6: Number Talks for Addition with Fractions [Pages 135 – 178] • Chapter 7: Number Talks for Subtraction with Fractions [Pages 179 – 218] *Suggested Research Article(s)*: • "The Role of Representations in Fraction Addition and Subtraction" by Cramer, Wyberg, & Leavitt	• NTR (Chap. 6 & 7) • Three-Act Fraction Task Information & Understanding
Module 3 February 7th – 20th	*Van De Walle Textbook Reading:* [Pages 386 – 404] • Chapter 15: Developing Fraction Operations *Number Talks Textbook Reading*: • Chapter 8: Number Talks for Multiplication with Fractions [Pages 219 – 271] • Chapter 9: Number Talks for Division with Fractions [Pages 273 – 296 & 302 – 315] *Suggested Research Article(s)*: • "Measurement and Fair-Sharing Models for Dividing Fractions" by Gregg & Gregg	• NTR (Chap. 8 & 9) • PSS (Chap. 15) • Three-Act Fraction Task (First Submission)
Module 4 Feb 21st – Mar 6th	*Van De Walle Textbook Reading:* [Pages 405 – 434] • Chapter 16: Developing Decimal and Percent Concepts and Decimal Computation *Number Talks Textbook Reading*: • Chapter 5: Number Talks to Help Students Connect Fractions, Decimals, and Percentages [Pages 113 – 132] • Chapter 10: Number Talks for Operating with Decimals [Pages 318 – 332] *Suggested Research Article(s)*: • "Decimal Fractions" by Martinie	• NTR (Chap. 5 & 10) • PSS (Chap. 16)
Module 5 March 7th – 13th	*Van De Walle Textbook Reading:* [Pages 435 – 459] • Chapter 17: Ratios, Proportions, and Proportional Reasoning *Number Talks Textbook Reading*:	• NTR (Proportions) • PSS (Chap. 17)

	• Chapter 9: Number Talks for Division with Fractions [Pages 297 – 301] *Suggested Research Article(s)*: • "Multiple Ways to Solve Proportions" by Ercole, Frantz, & Ashline	
Module 6 March 14th – 27th	*Van De Walle Textbook Reading:* [Pages 460 – 499] • Chapter 18: Developing Measurement Concepts	• PSS (Chap. 18) • Three-Act Fraction Task (Second Submission)
Module 7 Mar 28th – Apr 10th	*Van De Walle Textbook Reading:* [Pages 500 – 542] • Chapter 19: Developing Geometric Thinking and Geometric Concepts *Suggested Research Article(s)*: • "Is a Rectangle a Square?" by Renne • "Prisms and Pyramids: Constructing Three-Dimensional Models to Build Understanding" by Koester	• PSS (Chap. 19) • Mathematical Teaching Philosophy
Module 8 April 11th – 24th	*Van De Walle Textbook Reading:* [Pages 299 – 335] • Chapter 13: Algebraic Thinking, Equations, and Functions *Suggested Research Article(s)*: • "Teaching Algebra Without Algebra" by Kalman	• PSS (Chap. 13)
Module 9 Apr 25th – May 1st	Work on Three-Act Fraction Task	• Three-Act Fraction Task (Final Submission)