EDUC 614-IS-3 – Elementary Math Methods
School of Education & Behavioral Sciences
Winter 2020 / 3 Credits
Online Graduate

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Learning Materials:
- **Required Textbooks**:
  - ○ J.A. Van DeWalle, K. Kary, J.M. Bay-Williams (2016). *Elementary and middle school mathematics: Teaching developmentally*. 10th ed. Pearson. ISBN: 9780134802084
  - ○ Boaler, J., (2015). *Mathematical mindsets: Unleashing students' potential through creative math, inspiring messages and innovative teaching* (1st ed.). Jossey-Bass. ISBN-13: 978-0470894521
- **Common Core State Standards (CCSS)** for grades K – 6. Electronic copy available at:
  - ○ http://www.corestandards.org/wp-content/uploads/Math_Standards1.pdf
- **3-Ring Binder**: Throughout the course, you should keep a collection of the course material. This is comprised of problem-solving sets, discussion posts, and all other assignments. All will be posted on Canvas under weekly "Modules" and should be kept in an organized binder.
- Other readings and video links will be provided when necessary.

Course Catalog Description:
Philosophy and rationale for teaching math to young children. General math theory and concepts are demonstrated through the use of math materials and other manipulatives.
Required: 10 hours of O&P

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:	**WASC Core Competencies:**
1. Educate for Formation in Faith	1. Written Communication
2. Provide an Integral Quality Education	2. Oral Communication
3. Educate in Family Spirit	3. Quantitative reasoning
4. Educate for Service, Justice, and Peace	4. Critical Thinking
5. Educate for Adaptation and Change	5. Information Literacy

Program Learning Outcomes (PLOs):

1	*Content Knowledge* (Knowledge of subject matter)
2	*Developmentally Appropriate Practice* (Knowledge of how students develop and learn, and engagement of students in developmentally appropriate experiences that support learning)

3	*Pedagogical Content Knowledge* (Knowledge of how to teach subject matter to students and application of a variety of instructional strategies that are rigorous, differentiated, focused on the active involvement of the learner)
4	*Educational Technology* (Knowledge of and application of appropriate technology for student learning)
5	*Assessment for Learning* (Knowledge of and use of appropriate assessment strategies that enhance the knowledge of learners and their responsibility for their own learning)
6	*Diversity* (Skills for adapting learning activities for individual differences and the needs of diverse learners and for maintaining safe positive, caring, and inclusive learning environments)
7	*Focus on Student Learning* (Skills in the planning and design of meaningful learning activities that support and have positive impact on student learning based upon knowledge of subject matter, students, the community, curriculum standards, and integration of appropriate technology)
8	*Professional & Ethical Dispositions and Communication* (Professional dispositions, professionalism in teaching, and ethical standards of conduct consistent with Marianist values, and positive and constructive relationships with parents, the school community and professional colleagues).

Course Learning Outcomes (CLOs):

1	Know, understand, and use the major concepts and procedures that define number and operations, algebra, geometry, measurement, and data analysis and probability.
2	Engage in problem solving, reasoning and proof, communication, connections, and representation.
3	Plan lessons that teach upper elementary students: 1. To understand and use the major concepts and procedures that define number and operations, algebra, geometry, measurement, and data analysis and probability. 2. To explore, conjecture and reason logically; to solve non-routine problems; to communicate about and through mathematics; and to connect ideas within and between mathematics and other intellectual activity.
4	Know what mathematical preconceptions, misconceptions, and error patterns to look for in upper elementary student work as a basis to improve understanding and construct appropriate learning experiences and assessments.
5	Know and are able to help students understand the history of mathematics and contributions of diverse cultures to that history.
6	Foster students' use of appropriate technology.

Assessment:

Since this course is online, the dates noted are permanent. Read the textbook sections BEFORE you turn in assignments as indicated on the tentative schedule at the end of this syllabus. Always be prepared to explain your thinking in every assignment. 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. Late assignments will not be accepted. Submissions will all be done electronically through Canvas in **PDF format**.

1. Professionalism / Participation – 10% of Final Grade

Due: Ongoing evaluation by instructor throughout the semester

Important in the concept of professionalism is your concern with becoming the best teacher you can become. It is your instructor's responsibility to challenge you to grow as a professional and to help

you develop a professional disposition. However, you also have a responsibility to be responsive and participate fully in all activities and assignments on time. Your grade for this category will be determined based a holistic evaluation of your professionalism and participation.

2. Problem-Solving Sets – 15% of Final Grade
Due: After the completion of Chapters 8 – 12, 14 & 15
20 points each
After selected chapters, you will complete a series of mathematical problems using strategies that elementary level students might use to complete the mathematical tasks. There will also be an assignment called "My Math Animal Is…" in Week 1 that will be graded under this category. The readings, videos, and presentations can be used to help you make sense of how to solve these problems and prepare you to teach these to students in the future. It is important that you are diligent in solving these each week to the best of your ability. The intention of these problems is to help you not only participate in class discussion, but to help you to deepen your own conceptual understanding of the mathematical concepts you may be teaching in the future. These will be submitted on Canvas in a PDF format.

3. Chapters 1 – 4 Reflections– 10% of Final Grade
Due: After the Completion of Chapters 1 – 4
10 points each
There will be chapter reflections from your readings in the textbook for Chapters 1 – 4. Reading the selected chapters is vital for your success in this class and your own future classroom.
*   For ONLY chapters 1 – 4, you will be required to do a reading reflection over those chapters. Your reflections must be submitted on Canvas in a PDF format. The form in which you complete your reflection can be chosen from the following three options:
    a. Written Reflection – requires a 250-word typed reflection of the chapter
    b. Mind Map – summarize main ideas in a mind mapping format that shows strong understanding of the chapter and several of the main ideas presented in the chapter
    c. Agree & Disagree – Make a bulleted list of 10 points in the chapter you agree with and 5 points in the chapter you disagree with. Each bullet must be a complete sentence.

4. Number Talk Discussions – 15% of Final Grade
Due: Randomly Throughout the Semester
5 points each
You will be required to watch a series of Number Talks videos in this course. Number Talks is a very informal, collaborative way to teach mathematics to an entire classroom using mental mathematics. If you are unfamiliar with Number Talks, I hope you find the videos informative and see them as a powerful way to allow children to explain their thought processes about mathematics. For the Number Talk videos, you will be required to participate in an online discussion post on Canvas. You will post comments and answer questions about the videos you observe. Reponses must be filled with thoughtfulness contributing the conversation, and responding to at least one other classmates' posts, in order to receive full credit.

5. O&P Assignments – 20% of Final Grade
Due: Randomly Throughout the Semester
20 points each
You will have five separate assignments to complete during your Observation & Participation time in the classroom you are assigned to this semester. Two of the assignments are simply submitting your email of official placement, and your completed time sheet when the semester is finished. The other three are true O&P assignments that take place in the classroom. These will be submitted on Canvas in a PDF format. Each of the three assignments will involve communication between yourself and your mentor teacher. Please ensure your mentor teacher that if they have questions about the

assignments they can contact me at any time. A summary of each assignment is given below. More details about the assignments will be posted on Canvas.

1) *Placement Confirmation Email* – Submit a screenshot, or a saved file of the email confirming your placement in your particular school, grade level, and name of mentor teacher.
2) *Observation Reflection* – a general reflection will be made about which of the 8 Mathematical Practices took place in the mathematics classroom during hours 1 – 4 of your O&P.
3) *Small Group Reflection* – a mathematical task will be completed with a group of 2 – 3 children during hours 5 – 6 of your O&P, and a reflection will be made on the thinking of the students you work with.
4) *Teaching Reflection* – you will coordinate with your mentor teacher to teach a lesson to the whole class during hours 7 – 8 of your O&P, and a reflection will be made on how the lesson turned out.
5) *Completed O&P Time Sheet* – Fill out the days and times you completed your hours. You and your mentor teacher sign must sign the bottom before submitting the completed time sheet.

6. Jo Boaler Book Reflection– 15% of Final Grade
Due: At the End of Week 4
100 points
After the completion of reading Jo Boaler's book, *Mathematical Mindsets*, by the end of Week 3, you will write a 2 – 3 page, double-spaced reflection in APA format. Your book reflection must be submitted on Canvas in a <u>PDF format</u>.

7. Literature Review – 15% of Final Grade
Topic Approved: At the End of Week 5   *Final Version Due: At the End of Week 9*
100 points
Over a period of several weeks, you will locate 5 – 7 scholarly research articles to read about an elementary mathematics concept. Based on your readings, you will develop a 3 – 5 page literature review. Dr. Mukina must approve possible topics by the end of week 5 <u>before</u> you begin writing and researching. Your final paper must be free of grammatical and typographical errors along with using proper APA format. The final version of the literature review needs to be submitted on Canvas in a <u>PDF format</u>.

Assignments	% of Final Grade
Professionalism / Participation	10%
Problem-Solving Sets	15%
Chapter 1 – 4 Reflections	10%
Number Talks Discussions	15%
O&P Assignments	20%
Jo Boaler Book Reflection	15%
Literature Review	15%

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 evidence is provided by the student 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. Should you want to speak to a confidential source you may contact the following:
- Chaminade Counseling Center: 808-735-4845
- Any priest serving as a sacramental confessor or any ordained religious leader serving in the sacred confidence role.

Disability Access:
The University is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Students who need accommodations must be registered with Student Disability Services. 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 the instructor to plan accordingly. Failure to provide written documentation will prevent your instructor from making the necessary accommodates. Please refer any questions to the Dean of Students.

Week # Date	Class Description	Assignments Due Dates (Due by Midnight)
Week 1 January 6th – 12th	Van DeWalle Book: *Chapter 1*: Teaching Mathematics in the 21st Century • Pages 1 – 12 Van DeWalle Book: *Chapter 2*: Exploring What It Means to Know and Do Mathematics • Pages 13 – 29 Boaler Book: Chapters 1 – 3	January 12th • My Math Animal Is… • Chapter 1 Reflection • Chapter 2 Reflection
Week 2 January 13th – 19th	Van DeWalle Book: *Chapter 3*: Teaching through Problem Solving • Pages 30 – 54 Van DeWalle Book: *Chapter 4*: Planning in the Problem-Based Classroom • Pages 55 – 82 Boaler Book: Chapters 4 – 6	January 19th • Chapter 3 Reflection • Chapter 4 Reflection
Week 3 January 20th – 26th	Van DeWalle Book: *Chapter 7*: Developing Early Number Concepts and Number Sense • Pages 125 – 152 Boaler Book: Chapters 7 – 9 Number Talks Discussion: • "Ten Frames: 8 + 6"	January 26th • Number Talks 8+6 Discussion Post
Week 4 Jan. 27th – Feb. 2nd	Van DeWalle Book: *Chapter 8*: Developing the Meaning for the Operations • Pages 153 – 182 Number Talks Discussion: • "Array Discussion: 8x25"	February 2nd • Problem-Solving Set (Chap. 8) • Number Talks 8x25 Discussion Post • Jo Boaler Book Reflection
Week 5 February 3rd – 9th	Van DeWalle Book: *Chapter 9*: Developing Basic Fact Fluency • Pages 183 – 210 Number Talks Discussion: • "Multiplication String: 7x7"	February 9th • Literature Review Topic Submitted • Problem-Solving Set (Chap. 9) • Number Talks 7x7 Discussion Post • O&P Placement Confirmation Email

Week 6 February 10th – 16th	Van DeWalle Book: *Chapter 10*: Developing Whole-Number Place Value Concepts • Pages 211 – 237	February 16th • Problem-Solving Set (Chap. 10)
Week 7 February 17th – 23rd	Van DeWalle Book: *Chapter 11*: Developing Strategies for Addition and Subtraction Computation • Pages 238 – 272 Number Talks Discussion: • "Addition: 38 + 37" • "Subtraction: 70 - 59"	February 23rd • Problem-Solving Set (Chap. 11) • Number Talks 38+37 Discussion Post • Number Talks 70-59 Discussion Post • O&P Observation Reflection
Week 8 Feb. 24th – March 1st	Van DeWalle Book: *Chapter 12*: Developing Strategies for Multiplication and Division Computation • Pages 273 – 298 Number Talks Discussion: • "Multiplication: 32 x 15"	March 1st • Problem-Solving Set (Chap. 12) • Number Talks 32x15 Discussion Post • O&P Small Group Reflection
Week 9 March 2nd – 8th	Van DeWalle Book: *Chapter 14*: Developing Fraction Concepts • Pages 337 – 372 Number Talks Discussion: • "Comparing 24/50 and 21/40"	March 8th • Problem-Solving Set (Chap. 14) • Number Talks Comparing 24/50 and 21/40 Discussion Post • Literature Review
Week 10 March 9th – 14th	Van DeWalle Book: *Chapter 15*: Developing Fraction Operations • Pages 373 – 404 Number Talks Discussion: • "1/2 + 1/2, 1/2 + 3/4: Developing Addition Strategies with Fractions" • "1 1/3 x 3/4: Developing Multiplication Strategies with Fractions"	March 14th • Problem-Solving Set (Chap. 15) • Number Talks 1/2 + 1/2, 1/2 + 3/4 Discussion Post • Number Talks 1 1/3 x 3/4 Discussion Post • O&P Teaching Reflection • O&P Completed Time Sheet