MATH-271 – Mathematics for the Elementary School I (3 credits) **Spring 2021**
Section 002 TR 10:30-11:45
Section 003 TR 9-10:15

Instructor: & Learning Assistants:	Primary instructor: **Harry Bray** hbray@gmu.edu he/him/his Learning assistants: **Hannah Clark, Danielle Gazes, June Kang, and Ally Trainor.** Office hours with the instructor and learning assistants will be posted on Blackboard with a zoom link.
Required Materials:	1. **Custom bundle** of Bennett's *Mathematics for Elementary Teachers: A Conceptual Approach*, which includes a **manipulative kit** and an incorporated subscription to an online e-book through the learning software called "Connect." 2. **Everyday Materials:** colored pencils or pens, blank paper, lined paper, and graph paper. 3. **Special Occasion Materials:** a bunch of coins (~ 20 pennies, 10 nickels, 12 dimes and 10 quarters), a set of at least 50 pencils, and at least 10 rubber bands or small pony-tail holders! 4. **Technology:** High Speed reliable internet and a computer capable of doing online synchronous video meetings as well as watching numerous prerecorded videos and using the online learning system from the textbook publisher (Connect). If you cannot access a quiet space for class, having a headset with a microphone reduces the background noise when you are speaking in class.
Course Description:	Concepts and theories underlying elementary school mathematics, including sets, logic, systems of numeration, whole numbers, integers, fractions, decimals, measurement, operations with real numbers, equations, and inequalities. Intended for school educators; does not count toward a major in mathematics. All students will be required to do basic computations without the use of any calculator. **THIS IS NOT A TEACHING METHODS COURSE!!! This is a MATH CONTENT course.**
Preparedness / Collaboration:	During class, we will spend most of our time exploring mathematical ideas in groups. In order to make this course function, I need everyone to come prepared for class and to think carefully about how to make your group a great place to work and learn. Being prepared means: • Doing all assigned readings & watching all videos before class and bringing notes to class • Asking questions about homework and concepts before coming to class / on the discussion board • Bringing all necessary materials to class, as instructed Collaborating in class means: • Making thoughtful contributions to the group discussions and activities • Staying on task • Being an active listener • Being on time and staying engaged for the entire class period
Reading prep work	Reading your conceptual textbook will be vital in this course. It is required and graded. Some tips and things to be aware of: • You are expected to read each section we are about to cover PRIOR to attending the class. • **Reading comprehension will be evaluated as an assignment due before class via the Connect ebook's LearnSmart system.** • Reading should be active – read with a pencil, make notes, and answer the questions asked in the text. • Mark anything you have questions about with a sticky note and then come ask one of us about them. Be sure to write yourself notes about what we find together. • If it works for you, consider keeping a notebook of notes from your reading.
Worksheets	In class we will discuss and start working on worksheets. All students must submit these worksheets, either collaboratively or individually. **Collaboration is strongly encouraged.** • Every problem is graded for completeness. • Some problems will be graded based on correctness, clarity, and process (show your work).
Mastery Problems	There will be short mastery assignments in this course called Mastery Problems, each with only 1-3 problems, ensuring your understanding of a fundamental concept or methodology. • Mastery Problems will be assigned most weeks. • Mastery Problems are evaluated on a pass/fail basis. To pass, the student must demonstrate complete mastery of the concept tested. • Students have a total of three attempts at a Mastery Problem set to pass. If they do not pass the Mastery Problem set on the first attempt, they have two remaining attempts. • The Mastery Problems average incorporated into the final grade is the percentage of Mastery Problems passed out of the total number of Mastery Problems.

	Mastery Problems are a substantial part of the final grade. These are opportunities to solidify understanding before the exams and to support students' completion of the course with the essential foundations. **To pass this course, students must demonstrate mastery of the fundamentals.**

Exams & Final:	There are 3 exams in this course, and one comprehensive final exam. The exam problems can be more challenging than Mastery Problems. Exam problems will be evaluating a deeper conceptual understanding.	
Requirements and Grading:	3 Unit Tests	10% EACH, so 30% total
	Final	15%
	Weekly Worksheet Average	10%
	Connect Homework Average	10%
	LearnSmart Average	5%
	Mastery Average	30%
Scale:	100-90%	A
	89.9-80%	B
	79.9-70%	C
	69.9-60%	D
	59.9-0%	F
		+/- will be based on grade distribution
Academic dishonesty and the GMU Honor Code:	You are expected to follow the GMU Honor Code: https://oai.gmu.edu/mason-honor-code/ No collaboration is allowed on master problems or tests. Any indication that you have worked together, used someone else's ideas, copied, or allowed fellow student to copy your work is a violation of the GMU Honor Code. Please make sure you are clear on which assignments can be done collaboratively. If it is not stated specifically, then collaboration is not allowed. **Some** of the behaviors that will be considered cheating are: • Communicating with another person during an assessment • Copying material from another person for any assignment being graded • Allowing another person to copy from any assignment being graded • Use of unauthorized assistance on any assignment being graded • Use of unauthorized notes, books, calculators or cellphones during an assessment • Providing or receiving a copy of a quiz or exam used in the course	
Learning Differences & Special Needs	If you have a learning or physical difference that may affect your academic work, please see me and contact the Office of Disability Services (ODS) at 993-2474, http://ods.gmu.edu . All academic accommodations must be arranged through the ODS.	
Counseling and Psychological Services	Counseling and Psychological Services are available for GMU students. http://caps.gmu.edu 703-993-2380	
Equity and Inclusion:	George Mason University is an intentionally inclusive community that promotes and maintains an equitable and just work and learning environment. We welcome and value individuals and their differences including race, economic status, gender expression and identity, sex, sexual orientation, ethnicity, national origin, first language, religion, age, and disability. Please email me if you have any concerns about any feeling of inequity in this course.	
University Policies	The University Catalog, http://catalog.gmu.edu, is the central resource for university policies affecting students, faculty and staff conduct in university academic affairs. Other policies are available at http://universitypolicy.gmu.edu/. All members of the university community are responsible for knowing and following established policies.	

The homework assignments will be posted as we go. You are responsible for keeping up with any changes, so if you miss class you need to get the information from one of your group members or classmates well in advance of the next class.

A tentative schedule is posted below.

Day		Date	*TENTATIVE* SCHEDULE Topic/Section	**Manipulatives Needed –** Check Blackboard for the latest
1	T	1/26	Hello, Zoom, Jamboard, Expectations 1.2 - Patterns and Sequences	
2	R	1/28	1.2 – Patterns and Sequences	Punch out / print and cut out Color tiles manipulatives
3	T	2/2	1.1 – Problem Solving, Collaboration Commitment	Color tiles manipulatives
4	R	2/4	2.1 – Sets and Venn Diagrams	Punch out attribute pieces manipulatives
5	T	2/9	3.1 – Numeration Systems and Place Value	The coins and pencils (see special occasion materials above), all base blocks (base 5 and 10) manipulatives,  place value charts
6	R	2/11	3.1 – Numeration Systems and Place Value	The coins and pencils, all base blocks manipulatives,  place value charts
7	T	2/16	Measurement and dimensional analysis	Coins, ruler or measuring tape
8	R	2/18	Review **Exam 1 due 11:59pm Monday 2/22**	
9	T	2/23	3.2 – Addition techniques	Coins, Pencils, rubber bands and base blocks manipulatives
10	R	2/25	3.2 – Subtraction techniques	Coins, Pencils, rubber bands and base blocks manipulatives
11	T	3/2	5.1 – Addition and Subtraction of Integers	Red and black tiles manipulatives
12	R	3/4	3.3, 5.1 – Multiplication of Natural Numbers & Integers	Coins, Pencils, rubber bands and base blocks, Red & black tiles manipulatives
13	**T**	3/9	3.4, 5.1 – Division of Natural Numbers & Integers	Coins, Pencils, rubber bands and base blocks, Red & black tiles manipulatives
14	R	3/11	Review **Exam 2 due 11:59pm Monday 3/15**	
15	T	3/16	4.1 & 4.2 – Factors, Multiples, Greatest Common Factor and Least Common Multiple	Coins, Pencils, rubber bands and base blocks manipulatives, Red and black tiles manipulatives.
16	R	3/18	4.2 – Prime numbers and elementary number theory	
17	T	3/23	5.2 – Rational Numbers	Fraction bars manipulatives
18	R	3/25	5.3 – Addition and Subtraction of Rational Numbers	Fraction bars manipulatives
19	T	3/30	5.3 – Multiplication of Rational Numbers	Fraction bars manipulatives
20	R	4/1	Open	
21	T	4/6	5.3 – Division of Rational Numbers	Fraction bars manipulatives
22	R	4/8	Review **Exam 3 due 11:59pm Monday 4/12**	Fraction bars manipulatives
23	T	4/13	6.1 – Decimals	Base 10 Blocks and Fraction and Decimal pieces manipulatives.
24	R	4/15	6.1 – Decimal Operations	Base 10 Blocks and Fraction and Decimal pieces manipulatives.
25	T	4/20	6.1 & 6.3 – Decimals and Rational numbers, Percentages	Base 10 Blocks and Fraction and Decimal pieces manipulatives.
26	R	4/22	6.4 – Irrational Numbers	
27	T	4/27	Open	

28	R	4/29	Review	Base 10 Blocks and Fraction and Decimal pieces manipulatives.
			Final Exam due Thursday 5/6 at 1:30pm	