

**Michigan State University**  
**MTH 202 Elementary Math for Teachers II ~ Spring 2020**  
Section 002: MWF 12:40 – 1:30 pm  
A230 Wells Hall

---

**Instructor:** Valentin Kuechle  
**Office:** 222 North Kedzie Hall

**Email:** [kuechlev@msu.edu](mailto:kuechlev@msu.edu)

**Office Phone:** (517) 884-3477

**Office Hours:** TBD\*, or by appointment

**Final Exam:** Tuesday, April 28, 10:00am – 12:00pm. Location TBA.

**Prerequisites:** Successful completion of MTH 201 or an equivalent course at another institution.

**Course Goals:** MTH 202 is a 3-credit course. It is the second of a two-course sequence focusing on the mathematics needed for teaching in elementary school. MTH 201 focuses on numbers and operations; MTH 202 focuses on number theory, measurement, and geometry. These are mathematics courses, not courses in methods of teaching. Their main goal is deepening your understanding of the mathematics taught in contemporary elementary schools. “Deepening your understanding” means that you should know:

1. How to represent concepts and procedures in ways that help children make sense of mathematics.
2. What concepts and procedures elementary school pupils might find difficult and what errors they are likely to make.
3. How topics in mathematics curriculum are related to each other.
4. How to begin to create appropriate word problems for different mathematical concepts.

MTH 202 will also continue to teach you *how* to calculate with whole numbers and fractions, use geometric formulas, and solve standard word problems; *why* the computational algorithms work, *when* to use each operation or formula, and *whether* alternative solution methods might also be correct.

**Instructional Materials:**

**Course Text:**

(1) *Mathematics for Elementary Teachers, 5<sup>th</sup> Edition with Activities* by Sybilla Beckmann.

**Required Materials:** Starting week 4, please bring a ruler, compass, protractor, and scissors to every class. You will also find it useful to bring graph paper and tape for some assignments.

\*Office hours will be determined during the first week of class.

## **Learning & Teaching**

### **What is learning?**

For most of human history, humans appear to have thought of learning as a form of acquisition: Learning meant acquiring knowledge. Knowledge was treated as if it were an object in its own right: To be “passed on,” “shared,” “stored,” “retrieved,” “gained,” and “held.” From this acquisitionist point of view, it makes sense that a teacher’s job is to “pass on” knowledge to students by talking at them while they remain silent, for students only need to “receive” the knowledge. This point of view may be convenient for some, but it is nonsense. Students are not empty vessels into which knowledge is poured. Learning is not a form of acquisition. In fact, learning is better thought of as a form of participation. Learning is participating and becoming a member of a community.

### **What does that mean for MTH 202?**

By viewing learning as participating, it is not my job as your instructor to talk at you. Instead, it is my duty to create an environment in which you can participate and become a community of *mathematists*. (The term *mathematician* is often mistaken to mean just people who do research in mathematics, so to avoid ambiguity I prefer Anna Sfard’s term of *mathematist* which includes anyone engaged in mathematical work.) The MTH 202-environment will involve a lot of group work and the sharing of your mathematical ideas with your classmates and me.

Since learning is not a form of acquisition, it is unreasonable to expect that at the end of each class you will “hold” all of that day’s knowledge. To fully understand that day’s content, you will need to continue the participation and engagement with the ideas outside of class, either through self-communication (i.e., thinking) or communication with others. I highly encourage you to meet your classmates outside of class to discuss ideas and to come to office hours. Communication is the key to understanding.

### **A Note on Questions**

A vital part of communication is asking questions, particularly in the process of becoming a member of a community. But sometimes we do not know what question to ask. I think everyone knows the feeling of feeling unsure—but being unsure what you’re even unsure about! Thus, I have a broad view of questions: A statement of your unsureness and an attempt at describing it counts as a question.

**Assessment and Grading:**

**Your course grade is a total of 800 points, comprised of the following components:**

3 Exams worth 100 pts each	300 points
Final Exam	200 points
Snapshots of Learning	100 points
Homework	100 points
Participation/Attendance & Creative/Writing Assignments	100 points

**Straightforward grading scale:**

90% - 100%: 4.0	85% - 89%: 3.5	80% - 84%: 3.0	75% - 79%: 2.5
70% - 74%: 2.0	65% - 69%: 1.5	60% - 64%: 1.0	0% - 59%: 0.0

This grading scale will not be curved, even at the end of the semester. All grades are based on how well each student learns the material, so grades are not competitive.

**Mental Health:**

University life can be challenging. A time may come when you face situations and problems that you find difficult to deal with alone. I may be able to help to some extent, but MSU also has an Office of Student Affairs and Services, with a [Counseling Center](#), for which the phone number is (517) 355-8270. The Center is located on the 3<sup>rd</sup> floor of the Olin Health Center.

**Course Policies:**

**Exams:** In most cases, there are no make-up options available for exams. **Please note the dates of exams, listed on this syllabus, and arrange your schedule early to avoid any conflicts.** No collaboration of any form is permitted during exams. If a student is ill (and has a written note from the attending nurse or physician), on official university business (e.g. participating in a sanctioned club or sport), or grieving the loss of a family member, alternate arrangements *may* be possible if arranged in a timely fashion (meaning before the absence, when possible). The MSU Grief Absence policy: <http://ombud.msu.edu/classroom-policies/index.html>

**Snapshots of Learning:** There will be 11 Snapshots in total, each one worth 10 points. Dates are listed at the end of the syllabus. In most cases, there will be no make-up options available. The lowest score will be dropped at the end of the semester. Unless otherwise stated, no collaboration of any form is permitted on Snapshots.

**Homework:** There will be 10 homework assignments in total, due at the start of class on Monday, and each worth 10 points. If you are absent, you can email me a copy of your HW by the start of class on the due date to get credit for the assignment. **Late homework will NOT be accepted for any reason.** You are encouraged to work with your professor and other students to understand the course material. However, I expect that after conferring with others, you will write up your own responses individually and independently of others. DO NOT copy answers to homework problems from others. (See note on Academic Honesty later in this document.)

\*Office hours will be determined during the first week of class.

**Participation/Attendance & Creative/Writing Assignments:** This is an active learning class, meaning you need to be in class to participate in learning. **If you are absent, please notify me either before class or immediately after, by email.** Each Monday and Wednesday of class participation (starting the second week of class) is worth 1.5 points. Note: In the final week, attendance will be taken on Friday instead of Wednesday. *Regardless of the reason, you will not be able to make up points from classwork that you miss; however, you are responsible for learning any material you missed due to an absence.* There are 3 flex days built into the grade to account for any excused absence.

**It is expected that you do not use your cell phone, laptop, or other electronic device in a way that is disruptive to the class.** This is not because I think cell phones are bad, but because **it has been proven that the mere presence of cell phones (even when switched off or silent) reduces brain power.** It is my duty to create the best possible learning environment for you, and cellphones are not conducive to your in-class learning. If you are seen using a device for a purpose other than class work, I reserve the right to take away that day's class participation points.

There are also three required writing assignments at the start of the semester that are worth 4, 10 and 10 points respectively. These writing assignments will be introduced in the first two weeks of class. Later in the semester, two journals will be assigned, due the day of Exam 2 and the day of Exam 3 respectively. Both journals will be worth 20 points each. These journals will ask you to reflect on content, your learning, and your participation in any form you wish. In the past, students have, for instance, produced comic strips, Instagram posts, audio clips, videos, letters, etc. In this assignment, the medium you choose is only limited by your imagination.

**Mathematics Learning Center (MLC):** The MLC is a free tutorial service operated by the Mathematics Department for students enrolled in introductory mathematics courses. The staff does not have a direct link with our course, so please keep that in mind.

**Course Expectations:** **This is a 3-hour mathematics course. There is an expectation that students will work roughly 6 hours per week outside of class in order to master the course material.** Following are some ways in which you might productively spend this time:

- Read the textbook, both before and after the material has been covered in class. Take notes from your reading on the important ideas, theorems and definitions.
- Write a paragraph in your notebook after every class in which you include what you think the goal of the activity was and whether or not you met it.
- Complete the exercises in the book—those assigned for homework and others—as time allows.
- Meet with a study group to discuss the activities, solutions and solution paths.
- Go to office hours or the Math Help Room to go over answers to problems.

**Academic Honesty:** As noted on the web site of the Office of the Ombudsman and in other MSU publications “The principles of truth and honesty are fundamental to the educational process and the academic integrity of the University; therefore, no student shall:

- claim or submit the academic work of another as one's own.
- procure, provide, accept or use any materials containing questions or answers to any examination or assignment without proper authorization.
- complete or attempt to complete any assignment or examination for another individual without proper authorization.
- allow any examination or assignment to be completed for oneself, in part or in total, by another without proper authorization.

\*Office hours will be determined during the first week of class.

- alter, tamper with, appropriate, destroy or otherwise interfere with the research, resources, or other academic work of another person.
- fabricate or falsify data or results.” ...

If any instance of academic dishonesty is discovered by an instructor, it is his or her responsibility to take appropriate action. Depending on his or her judgment of the particular case, *he or she may give a failing grade to the student on the assignment or for the course.*

Student leaders have recognized the challenging task of discouraging plagiarism from the academic community. The Associated Students of Michigan State University (ASMSU) is proud to be launching the Spartan Code of Honor academic pledge, focused on valuing academic integrity and honest work ethics at Michigan State University. The pledge reads as follows:

**“As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do.”**

Resources on improving academic habits, avoiding academic misconduct, and frequently asked questions around academic misconduct are available at <http://honorcode.msu.edu>.

**Accommodation requests:** Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at [rcpd.msu.edu](http://rcpd.msu.edu). Once your eligibility for an accommodation has been determined, you will be issued a verified individual services accommodation (“VISA”) form. **Please present this form to me at the start of the term and/or two weeks prior to the accommodation date (test, project, etc).** Requests received after this date will be honored whenever possible.

**Emergencies:** In the event of an emergency arising within the classroom setting, the professor will notify the students of actions that may be required to ensure their safety. It is the responsibility of each student to understand the evacuation or “shelter-in-place” guidelines posted in each facility and to act in a safe manner. If an evacuation is ordered, please ensure that you do it in a safe manner and facilitate those around you that may not otherwise be able to safely leave. You are allowed to maintain cellular devices in a silent mode during this course, in order to receive emergency messages distributed by the university. When a student receives such a notification or observes an emergency situation, they should immediately bring it to the attention of the professor in a way that least alarms your fellow students.

**Inclusion:** MSU welcomes a full spectrum of experiences, viewpoints, and intellectual approaches because they enrich the conversation, even as they challenge us to think differently and grow. However, we believe that expressions and actions that demean individuals or groups compromise the environment for intellectual growth and undermine the social fabric on which the community is based.

**Course Supervisor:** If you have a problem regarding MTH 202 that is not resolved after talking with your instructor, please contact the Course Supervisor, Dr. Monica Karunakaran, N209 North Kedzie, Michigan State University, [karunak2@msu.edu](mailto:karunak2@msu.edu), (517) 884-3474. Best wishes for a successful semester!

\*Office hours will be determined during the first week of class.

**Student Feedback:**

Michigan State University takes the opinion of students in the evaluation of the effectiveness of instruction seriously and has implemented the SIRS (Student Instructional Rating System) process to gather student feedback. This course utilizes the “online SIRS” system. You will receive an email sometime during the last two weeks of class asking you to fill out the SIRS online form at your convenience. Please note that the final grade for this course will not be accessible on STUINFO during the week following the submission of grades for this course unless the SIRS online form has been filled out. You will have the option on the online SIRS form to decline to participate in the evaluation of this course—I hope, however, that you will be willing to give your frank and constructive feedback so that I may instruct students even better in the future.

\*Office hours will be determined during the first week of class.

**Important Course Dates:**

<b>Week</b>	<b>Monday</b>	<b>Wednesday</b>	<b>Friday</b>
1. 1/10 (8pm) Open add ends	1/6	1/8	1/10
2.	1/13 HW #1 due	1/15	1/17 Snapshot #1
3.	1/20 Holiday No Class	1/22 HW #2 due	1/24 Snapshot #2
4. 1/31 (8pm) Last day to drop with refund	1/27 HW #3 due	1/29	1/31 Snapshot #3
5.	2/3	2/5	2/7 Exam #1
6.	2/10 HW #4 due	2/12	2/14 Snapshot #4
7.	2/17 HW #5 due	2/19	2/21 Snapshot #5
8. 2/26 Last day to drop with no grade reported	2/24 HW #6 due	2/26	2/28 Snapshot #6
9. Spring Break Holiday	3/2	3/4	3/6
10.	3/9 HW #7 due	3/11	3/13 Snapshot #7
11.	3/16	3/18	3/20 Exam #2
12.	3/23 HW #8 due	3/25	3/27 Snapshot #8
13.	3/30 HW #9 due	4/1	4/3 Snapshot #9
14.	4/6	4/8	4/10 Exam #3
15.	4/13 HW #10 due	4/15	4/17 Snapshot #10
16.	4/20	4/22 Snapshot #11	4/24 Final exam review
17. Final Exam Week	Final Exam: Tuesday 4/28 from 10 am – 12 noon Location: TBA		

\*Office hours will be determined during the first week of class.