

Math 211: Fundamentals of Elementary Mathematics Fall 2021 CRN:13888

Instructor: Tricia Bevans

Class meets every MTWF 9:00-9:50 Weeks 1-10 in 119 Fenton Hall

Finals Week (no classes, no exam, office hours TBA)

Office: 333B Tykeson Hall

Email: thbevans@uoregon.edu (preferred method for contact)

Phone: 541-346-4790

Part 1: Course Information

Contacting your Instructor: How? When? Why?

How should you contact me?

Our class will communicate mostly through our Canvas site. Announcements and emails are archived there and automatically forwarded to your UO email, and can even reach you by text. Check and adjust your settings under Account > Notifications.

The most reliable way to reach me is by email at thbevans@uoregon.edu

You may also stop by my office at 333B Tykeson to see if I'm available to chat or answer a question. If I'm in my office I'll answer my phone (541-346-4790) but I don't recommend you leave a message.

If you are not able to reach me by email or in person and an issue requires urgent attention (such as during an assignment upload time) call the math department office at 541-346-4705 and they may be able to reach me or suggest another option to address your concern.

Providing some type of documentation (e.g. a screenshot of an error message, doctor's note) of what is going on and emailing so I can tell when you first contacted me can help me make appropriate adjustments for emergencies if they happen at times you can't reach anyone in a timely fashion.

When should you contact me?

You can email me or send a message through Canvas at any time of the day. If you contact me with a question or concern, I'll try to answer as quickly as possible, but may not see your email or answer it outside of normal "business hours". I usually respond to an email/message within one business day. My email forwards to my phone so if you have an urgent message I will usually see it shortly after you send it even if I'm not able to respond in that moment.

I am available for you to drop in during my scheduled office hours and encourage you to stop by. Come for a quick question or stay for the entire time. If you stop by at times outside my

scheduled hours I may be able to meet with you--I'll let you know if that isn't possible and we can set up another time to meet.

Why should you contact me?

Please let me know how things are going for you in the course and with your experience at the university in general. In particular, if you are struggling in the course for any reason (academic issues, personal issues, family concerns) let me know as soon as possible. If you don't feel comfortable sharing the details of what's bothering you, that's fine too. It's still good to have some sense that things aren't going as planned for you. I may be able to refer you to help elsewhere on campus. Of course if you have questions about a specific assignment including concerns about a due date let me know about that too. I am not always able to adjust assignments but I will be happy to strategize with you about how to do the best you can in the course under your circumstances.

Required Materials

There are no textbooks to purchase for the class this term.

Course Notes are provided electronically on Canvas

The required text

Knowing and Teaching Elementary Mathematics: Teachers' Understanding of Fundamental Mathematics in China and the United States, Liping Ma

is available electronically to read/download at

<https://alliance-primo.hosted.exlibrisgroup.com/permalink/f/3uoa1r/CP71326018570001451> (Links to an external site.)

Calculator: A standard scientific calculator is recommended for use on some of the work we will do. Graphing calculators (or others with greater functionality) will not be allowed on exams. Cell phones will not be acceptable as calculators on exams.

Office Hours and Tutoring

I will host regular office hours each week through week 10 in my office **333B Tykeson Hall**. These are **tentatively** scheduled for:

Monday: 12pm-12:50pm

Tuesday: 1pm-1:50pm.

Wednesday: 10am-10:50am

Friday: 12pm-12:50pm

I may adjust these depending on student preference but will send a Canvas announcement with the new hours and adjust them here as well if they change. Finals Week hours will be determined in week 10.

I welcome meetings outside my regular office hours, too. Just email me to set a time. At hours when I am not on campus we may meet via Zoom.

Zoom link for off-campus meetings by appointment:

<https://uoregon.zoom.us/j/94934767367?pwd=NkROaGFmRHZuMFFVdIRCN2svL1o2dz09> (Links to an external site.)

Or Meeting ID: 949 3476 7367

Passcode: Patterns

Free tutoring for 211

Tutor: Elizabeth White (ewhite@uoregon.edu)

Time: TBA

Location: TBA

If you have any trouble or for additional information, please contact Kim Lilley at klilley@uoregon.edu or 541-346-3226 for assistance.

Course Description

This course is designed to give you the foundation to be the math teacher you wish you had when you were in elementary and middle school! We'll look at an introduction to the development of number systems and study the principles behind addition, subtraction, multiplication and division of whole numbers. The class is structured around guided discovery through reasoning and discourse about challenging problems for adult-level learners that highlight the structure behind elementary mathematics concepts. Individual perseverance, collaborative group work and inclusive whole class discussion will be major components of the class.

Estimated Workload and Flexibility

General university policy suggests that for a four-credit course you should expect to spend 4 hours in class and **8-12 hours outside of class** each week. I recommend doing work each day, working with classmates, and attending office hours as part of the 8 hours outside of class to make the workload manageable.

As the university community adjusts to teaching and learning in the context of the COVID-19 pandemic, course requirements, deadlines, and grading percentages are subject to change. I will be mindful of the many impacts the unfolding events related to COVID-19 may be having on you. Though attendance and participation are included in your grade, during this unusual time, I

encourage you to talk with me about what you are experiencing so we can work together to help you succeed in this course.

Part 2: Course Goals and Outcomes

General Goals: Students will:

Value persistence, creativity, and thoroughness in problem solving within elementary arithmetic concepts

Produce and prove mathematical conjectures about elementary mathematical concepts in both child-appropriate and more formal adult language

Draw connections between different arithmetic concepts

Answer hypothetical questions from elementary students and troubleshoot student errors

Explain the mathematical choices and the pedagogical rationale for those choices presented in the CCSSM Progressions documents.

Come to view themselves as proficient mathematical problem solvers

Content Outcomes:

Brief descriptions of Content Outcomes are given below. More specific descriptions of content-focused outcomes for these including examples of tasks that align to them are given on Canvas. These will be the basis for task questions on assignments and exams.

(Numeral Systems)

- 1a Recognize and use place value.
- 1b Perform elementary mathematics in a variety of numeral systems including systematically using exchanges within these systems.
- 1c Know from memory and use the definition of base-b numeral system.

(Meaning, Method and Mastery)

- 2a Use the terms meaning, method and mastery to analyze K-12 learning trajectories.
- 2b Use the terms meaning, method and mastery to analyze one's own Math 211 learning.

(Addition and Subtraction)

- 3a Identify and apply various meanings for addition and subtraction such as put-together/take-apart and comparison. In particular, use visual models in different ways depending on the meaning.
- 3b Illustrate properties of addition including the connection between addition and subtraction.
- 3c Perform and justify computation algorithms and strategies for addition and subtraction in a variety of numeral systems using models as well as the definition of base numeral systems and be able to distinguish between strategies and algorithms.

(Multiplication and Division)

- 4a Identify and apply various meanings of multiplication, in particular through equal groups, repeated addition and skip counting, rectangular arrays, and scaling on the number line. Be able to show these meanings are equivalent.
- 4b Use and justify properties of multiplication.
- 4c Identify and apply various meanings of division, including the partitive, measurement and repeated subtraction models and explain the connection of division to multiplication with these meanings.
- 4d Perform and justify multiplication and division computation algorithms and strategies in a variety of numeral systems using models as well as the definition of base numeral systems.

(Divisibility)

- 5a Identify and justify basic divisibility properties.
- 5b Use and justify divisibility tests.

Part 3: Assignments and Grading

I'll post all assignments, announcements, etc. for the course on Canvas and assignments will all be completed or submitted on Canvas.

If I make a change to the schedule I'll post the change in advance on Canvas and send an announcement to the class.

You'll be given daily assignments to complete both in class and outside of class but these will be due roughly twice per week. Due dates for assignments will be clearly indicated in the Canvas modules for each week. To indicate how well you've done on a given homework task you'll be given written feedback (by me or a paper marker) based on your work as well as a score on your assignment. You are encouraged to work with classmates on the worksheet tasks but when you write your final draft of your solutions the work should be your own understanding of the solutions. Midterm exams will provide an additional way to assess your understanding and the work on these assignments should be entirely your own regardless of the format. I will also use brief quizzes submitted via Canvas to give both of us an idea of how things are going with the material. Tentative grade weights are as follows:

Active Participation (5% of Grade)

Worksheets: Marker Questions (10% of grade)

Worksheets: Instructor Questions (15% of grade)

Quizzes (5% of grade)

Midterm Exams (15% of grade each x3)

Final Project (20% of grade)

Letter Grades:

Students who achieve 90% or higher for their total grade will get at least an A, students who achieve 80% or higher will get at least a B, and so on. It is *possible* (though unlikely) that at the end of the course the instructor will extend these cutoffs a little lower, deciding, for example, that scores of 87% and higher get As. These possible extended cutoffs will not be decided until after the final exam has been completely graded, and will be available when final course grades are released.

Plus and minus grades will be awarded to students in the top or bottom 2% of their grade bracket.

A more detailed description of each component of your grade can be found below:

Active Participation:

Habits and Supports:

This math sequence may be one of the most difficult you ever take, in part because you have probably not had experience developing the habits you'll need or taken advantage of the supports that will be invaluable. This part of your grade is to support you in working on a math class in a different way, including participating actively in class.

You'll need to complete each of the following within the first 3 weeks of the term:

- Work with two different classmates on at least two assignments (upload a screenshot of you in a Zoom room with a classmate or some other evidence of your interaction)
- Attend office hours (after beginning an assignment on your own) two times

Class preparation and Follow-up: I'll frequently assign relatively straightforward activities or readings with a short quiz that either follow up on an activity from class or prepare you for an upcoming class. These are either designed to give preliminary knowledge of a topic so we can use class time for more in-depth study or to help reinforce difficult material we have just learned.

Participation:

Additionally, your grade will be based on evidence of active class participation throughout the term including

- Consistent attendance: Missing more than 4 classes without an approved excuse will result in a 0 for your participation grade. If you must miss a class (i.e. for illness) you'll need to check with me to determine if it is possible to make up any of the participation you missed.
- Sharing reasoning (including incorrect or incomplete reasoning) with peers through presentations and in class discussions (see below)

Presentations:

Students will take turns doing both formal and informal presentations.

Informal presentations: These are simply opportunities to share your work on a problem during class. Your ideas don't need to be complete or polished or even correct. I may even ask a particular student (privately) if they feel comfortable sharing something that didn't work but has ideas that will benefit the entire class. Make sure to volunteer at least a few times during the term to do this.

Formal presentations: These presentations aren't actually terribly formal, but you do have some time to plan for them and should do your best to work through the problem. They are not graded for correctness, but I expect you to show evidence of preparation. I'll post presentation questions either with homework or on Canvas (probably in the discussion board section) so that students can sign up to prepare and present their work *with a partner*. If no one signs up for a presentation question by two days before the presentation day, I'll assign it to a pair of students.

Prior to submitting a presentation you and your partner must meet with your instructor (during office hours or by appointment). Then, record and upload your presentation as a video.

As part of your score for this presentation you must also **watch at least 6 other presentations and make comments** relevant to the content of their presentation.

Worksheets: Marker Questions

The activities we do in class are followed by questions you complete as homework. Homework assignments are divided into three categories: Marker questions, Instructor questions, and Presentation Questions.

Marker questions are more straightforward applications of the ideas we've addressed in class that day and are graded by a paper marker. These are **due Thursday night but I recommend you work on a few questions after each day of class**. For each homework assignment you'll get feedback on which questions may need additional attention. Each assignment will have an overall score based on Engagement and Effort, Presentation and Completion, and Accuracy (see rubric for the assignment in Canvas).

You may turn in the marker questions up to 24 hours after the due date without penalty. **Any other late work must be approved by the instructor.**

Worksheets: Instructor Questions

Instructor questions generally will involve more creative thinking and applying the concepts from class in less straightforward ways. Students will need to include both preliminary work on a task (i.e. "Exploration" questions) as well as a polished write-up of the task solution (i.e. a "Final Write-Up")

- Exploration questions will be **due on Thursday night**.
- Final Write-up for Instructor questions will be **due on Monday night**.

I'll include a rubric with the Instructor Question assignments on Canvas.

You may turn in instructor questions up to 24 hours late without penalty. **Any other late work must be approved by the instructor.**

Quizzes

Throughout the term you will take short quizzes to prepare you for the types of questions you will see on exams as well as give us both an idea of how well you are understanding concepts. You will complete these on Canvas about once per week where you'll be given a window of time in which to complete the quiz. Some questions will be graded automatically by Canvas and others will be free-response that I grade. You may need to take pictures or screenshots of your work to upload.

You should not collaborate with other students in any way for a quiz.

Midterm Exams

Three midterm exams for the course will assess your understanding of the material in the course. Each exam is worth 15% of your final course grade.

Exams will be handwritten and taken during our class time. If change to remote learning becomes necessary, the exam will be assigned and submitted through Canvas (with additional details provided if this is necessary).

Students with accommodations for different conditions or increased testing time should be in contact with me to make sure that we get everything set up properly.

You must have a passing exam average to pass the class.

Final Project

I will update an assignment with full details of the final project by the end of Week 8.

The final project will include the following or similar elements:

- A collection of several tasks chosen from your work throughout the term that highlight how you've used one of the Standards for Mathematical Practice from the Common Core State Standards, and how the remaining Standards for Mathematical Practice are part of your work as well.
- Work on 2 to 3 original tasks that incorporate several course content outcomes with a discussion of which outcomes are present in your work with the task.
- Midterm reflection questions that indicate increased understanding of tasks similar to or related to ones from the midterms.

The final project will be **due Wednesday of Week 9 but extensions are possible.**

A student must earn a passing grade on the final project in order to pass the course.

Part 4: Course Policies and Resources

Your Well-Being

Life at college can be very complicated. Students often feel overwhelmed or stressed, experience anxiety or depression, struggle with relationships, or just need help navigating challenges in their life. If you're facing such challenges, you don't need to handle them on your own--there's help and support on campus.

As your instructor if I believe you may need additional support, I will express my concerns, the reasons for them, and refer you to resources that might be helpful. It is not my intention to know the details of what might be bothering you, but simply to let you know I care and that help is available. Getting help is a courageous thing to do—for yourself and those you care about.

University Health Services help students cope with difficult emotions and life stressors. If you need general resources on coping with stress or want to talk with another student who has been in the same place as you, visit the Duck Nest (located in the EMU on the ground floor) and get

help from one of the specially trained Peer Wellness Advocates. Find out more at health.uoregon.edu/ducknest [Links to an external site.](#).

University Counseling Services (UCS) has a team of dedicated staff members to support you with your concerns, many of whom can provide identity-based support. All clinical services are free and confidential. Find out more at counseling.uoregon.edu [Links to an external site.](#) or by calling 541-346-3227 (anytime UCS is closed, the After-Hours Support and Crisis Line is available by calling this same number).

Accessible Education

The University of Oregon is striving to make all education accessible and inclusive. If any student is having difficulty meeting the demands of the course for whatever reason please see me as soon as possible – it is always better to talk to me before you get too far behind. I want to help each one of you succeed in this class.

You may also want to talk to someone in the Accessible Education Center if you are struggling to meet academic demands. You may be able to find information on strategies and support networks even if you don't qualify for specific accommodations.

[Accessible Education Services](https://aec.uoregon.edu) (aec.uoregon.edu) 541-346-1155

Support Resources

On Campus

- University Tutoring and Academic Engagement Center (<https://engage.uoregon.edu>) 541-346-3226
- University Counseling Center (<https://counseling.uoregon.edu/>) 541-346-3227 [24hr crisis line]
- Accessible Education Services (aec.uoregon.edu) 541-346-1155
- Ombuds Office (<https://ombuds.uoregon.edu/>) 541-346-6400

Community (off-campus)

- White Bird Clinic (<https://whitebirdclinic.org/>) (24 hour crisis) 541-687-4000
- Sexual Assault Support Services (<http://sass-lane.org/>) Crisis Line (SASS) 541-343-7277
- Hope and Safety Alliance (domestic and sexual violence help) (<https://www.hopesafetyalliance.org/>) 541-485-6513

Title IX and Students who are victims of sexual violence:

Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or a student that you know has experienced sexual assault, relationship violence, stalking, and/or sexual harassment is encouraged to seek help by contacting Renae DeSautel, Sexual Violence Response

& Support Services Coordinator, desautel@uoregon.edu. She will keep your information confidential. In addition, the UO Ombudsperson Jennifer Reynolds (541 346-6400 or ombuds@uoregon.edu) can provide assistance. You can also contact any pastor, priest, imam, or other member of the clergy. All of these people, including all UO faculty members, have an obligation not to reveal your name or other specific information without your permission, although faculty members do have to provide "general information" (nothing that identifies anyone) that will help us create a safer campus. As a faculty member, I can also reassign work partners, change seating charts, and make other accommodations that survivors of sexual violence may need.

Academic Integrity and Professionalism

As a student at this university you are expected to maintain high degrees of professionalism, commitment to learning and participation in class, and also in your behavior in and out of the classroom.

The University Student Conduct Code (<https://dos.uoregon.edu/conduct>) defines academic misconduct, which includes unauthorized help on assignments and examinations and the use of sources without acknowledgment. Academic misconduct is prohibited at UO. I will report misconduct to the Office of Student Conduct and Community Standards. Consequences of this can include failure of this course. I will ask you to certify that your exams/quizzes/projects are your own work.

I will adjust times and conditions to support students with accommodations through the Accessible Education Center.

I have designed exams with the expectation that you will have access to a small note card of material. Additionally, I will be looking to see evidence of critical thinking, your ability to put the concepts we're working on into action, and your ability to explain your understanding in response to the exam prompts rather than just rote memorization or performance of specific procedures so it is unlikely that cheating will be helpful. On an exam it is never appropriate to interact with a classmate in order to get or give help.

Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students' obligation to clarify the question with the instructor before committing or attempting to commit the act. Additional information about a common form of academic misconduct, plagiarism, is available at researchguides.uoregon.edu/citing-plagiarism