University of Alabama at Birmingham

MA 516-2D *Numerical Reasoning - REMOTE*

Fall 2020 T/Th 12:30-1:45pm

Teaching Time Zone: Central Time U.S. Official Time Zone Site

Instructor: Tami Puchta, Ed.S. **Virtual Office Hours:** TBA on Canvas
Contacts: tpuchta@uab.edu 205-533-2902 (cell)
ZOOM Meeting Room:
https://uab.zoom.us/j/5447109945?pwd=UTc1K2E4ZzJwam9qQmdGWE95REVoUT09

Preferred Methods of Contact:
Email is the preferred method of contact if you have questions. Please expect a response within 24 hours on weekdays and a slower response on weekends. Include the course number and section in the subject line of your email for a faster response. I am available to meet with you virtually via Zoom by appointment.

Remote: This class will be conducted virtually using a combination of live and recorded content through Canvas, Zoom, and other tools using the Canvas Learning Management system. Students should reserve the days and hours listed in the Class Schedule for live course elements, determined by the instructor. Students will not attend class on-campus.

Required Text: There is no required text for this course, but there will be assigned readings provided on Canvas. You will need graph paper, a ruler, color pencils, and scissors and tape for various tasks

Course Description

This mathematics course will focus on numerical reasoning and problem solving. It is designed around the Common Core State Standards and the National Council of Teachers of Mathematics standards and is intended for future elementary and secondary teachers. Working in small groups and individually, students will investigate a variety of problems using numerical reasoning. Students will also explore models to help K-8 students understand operations on and properties of real numbers including integers, fractions, percentages, decimals, rational and irrational numbers. Students will investigate problems focused on ratio and proportional reasoning.

This is an inquiry-based course in which students will use mathematics to describe, understand, and solve problems. Each topic will be studied with emphasis on reasoning, problem solving, developing mathematically convincing arguments, and the clear communication of mathematical ideas. This course emphasizes conceptual understanding as well as procedural fluency and stresses the importance of examining problems from multiple perspectives: numerical, verbal, algebraic, and geometric. Students will have mathematics homework as well as out-of-class readings which will require written reflections.

Learning Outcomes

1. Demonstrate a strong conceptual understanding of the properties of numbers (whole numbers, fractions, equivalent fractions, percentages, integers, rational numbers, decimals, irrational numbers, real numbers).
2. Demonstrate a strong conceptual understanding of operations on numbers (whole numbers, fractions, equivalent fractions, percentages, integers, rational numbers, decimals, irrational numbers, real numbers).
3. Demonstrate knowledge of concepts of number and number relationships, number systems, estimation, and computation in the context of problem solving.
4. Demonstrate knowledge of concepts of number theory in the context of problem solving.

5. Compute and estimate fluently using integers, rational numbers, and decimals, including both written and mental strategies.
6. Model and solve a variety of theoretical and applied problems
7. Model and solve problems involving ratios, rates, and proportional reasoning, and distinguish between proportional and non-proportional relationships.
8. Use and convert units appropriately when solving problems.
9. **Effectively and clearly communicate mathematical ideas orally and in writing**.
10. **Demonstrate a positive disposition toward, persistence in problem, solving and reflection in doing mathematics**.
11. Demonstrate the ability to interact within groups, and with the class as a whole, while demonstrating cognizance of working with students at different levels.

The goal of this course is that you become mathematically powerful students and that you become competent and confident problem solvers. The content and experiences in this course will lead you toward this goal. My role as the instructor will be to guide and support you as you make sense of mathematics. My role is not to tell you everything about the subject, nor is it to answer all of the questions that will arise as you engage in problem solving. You will at times experience confusion and perhaps frustration. This is a natural part of the learning process. I will try to help you reflect and work your way out of confusion before your frustration becomes debilitating to your learning. Don't be afraid of wrong answers. Sometimes learning occurs by multiple attempts down wrong paths until you find a correct path.

You will learn while working in teams, in pairs, and as an individual as you solve problems. Listening to others as you engage in collaborative problem solving will help you see a variety of points of view and several ways of solving a problem. In groups, you are not to 'teach' someone how to solve a problem and you are not to direct others to think in a certain way. Each person must think for her/himself and make sense of the situation. For many problems, I will insist that you not be satisfied with simply finding one way to solve a problem. While getting the right answer is a goal in solving a problem, understanding how you got to the answer is also important, as is being able to communicate your understanding to others. Collaborative learning is encouraged; however, you are individually accountable for learning the material.

Course Requirements

1. **Attendance** and **active participation** in all sessions. Since group participation is an essential component of this course, missing more than 25% of classes with unexcused absences will result in a grade of F for this course.
2. You may collaborate on solving the menu tasks. However, it is imperative that you are able to solve problems on your own on the exam.
3. Complete individual menus of problems, group tasks, and homework problems. Graduate students are required to complete four additional and more complex problems for Menus 1 and 2. These will be distributed in class.
4. Complete article reviews and other readings.
5. Actively participate in Canvas discussions.
6. Complete an in-class Midterm Performance Task and a Final Performance Task.
7. Develop a final Mathematics Portfolio. Directions will be provided on Canvas.
8. Complete a final mathematics task to be included in your Portfolio. This task will be distributed in class and is in addition to the Portfolio tasks described on Canvas.
9. Have a positive and productive disposition toward yourself, your classmates, and mathematics. Be respectful of others as you share ideas.

Course Policies

Grades

Students earn their grade in the course as determined in the table below. Points accumulated will be recorded in CANVAS. Important due dates will be listed in CANVAS calendar. Graduate students may not earn a grade of D.

Assignments	Percent of Final Grade
Math Menus (2)	20
Article Reviews	10
Discussion Groups	12.5
Midterm	20
Mathematics Portfolio	10
Final	22.5
Participation/Attendance*	5

Percent Earned	Final Grade
92-100	A
82-91	B
72-81	C
<71	F
Please note there is no grade of D for graduate students.	

*Item 2 recognizes those who put forth a maximum effort and demonstrate persistence in problem solving. The instructor will use her best professional judgment in awarding the 5% for this item based on a student's full participation in class activities, attempts at completion of challenging tasks, and may be influenced by a student's attempts or non-attempts at dessert items from the menu problems. The instructor's decision here is based on her professional experience and is the final judgment on this item.

Since group participation is an essential component of this course, missing more than 25% of classes or not participating in 33% or more of the group discussions with unexcused absences will result in a grade of F for this course.

Exams

An online midterm and a final are scheduled for this class. The midterm will occur during a regular class time and the final will take place during the scheduled final time for this section. See the UAB Final Exam Schedule. Make-up exams will be scheduled only when requested within the first week of the term for a valid and verifiable reason or in case of an extreme emergency.

Discussions:

You will be assigned to at least one discussion group each week where you will discuss given patterns or tasks to discuss. There are two parts to the discussion – your initial post and your responses.

- Your initial post should show your current thinking about the assigned task. You may submit an incomplete solution, but do show what you have figured out so far.
- You are also expected to respond to at least two posts by other students. Your initial and response posts must be of substance. Posts *only* saying "I agree with your point" or "I did it the same way" are not substantive and will not be counted. Here are some tips on how you can make your post substantive:
    - State how your solution is the same or different than others and how/why.

- If you are truly stuck, be specific about what you do know (what the is problem asking, what do you know so far) and what kind of help you think you need. NOTE: Simply "getting an answer" that you do not understand will not help you very much in this class.
- Ask a specific question about someone's solution.
- Expand on at least one idea shared in the conversation.
- Connect your solution or someone else's to a previous pattern or task.
- Ask follow-up questions
- Answer questions that your peers or instructor ask about your post

Working in Groups:
There will be group tasks in which you will collaborate with other students to submit a solution to a task. At the end of some projects/tasks, you will be required to fill out a group self-evaluation form to evaluate other team members' contributions to the project.

Attendance and Tardiness/Early Departure Policy
Attendance every day is expected and essential to success. Please be on time to class and let me know as soon as possible if it is necessary to miss class. **Class roll will be taken** at the beginning of each class period and recorded. Tardiness to class and early departures are disrespectful to the instructor and your classmates.

Late Assignments/Revisions
All assignments are due at the indicated/assigned due date and time in Canvas unless otherwise instructed. In the event the instructor will accept a late assignment, ten percent of the assignment grade will be deducted per day late. No revisions will be possible unless requested by the instructor. If the instructor requests a revision of an assignment, the grade you receive will be an average of the first and second attempts. Once an assignment closes on Canvas, no late submission will be permitted except in extreme circumstances.

Time Commitment:
This class meets twice per week for 1.5 hours each. In addition to our virtual class time, you should spend about 6 hours per week reading, studying, preparing for class discussions, and completing assessments.

UAB Policies

Add/Drop and Course Withdrawal

- Drop/Add: Deadlines for adding, dropping, or withdrawing from a course and for paying tuition are published in the Academic Calendar available online. Review the Institutional Refund Policy for information on refunds for dropped courses.
- Withdrawal: To avoid academic penalty, a student must withdraw from a course by the withdrawal deadline shown in the academic calendar and receive a grade of W (withdrawn). Failure to attend class does not constitute a formal drop or withdrawal.

Academic Misconduct
The University of Alabama at Birmingham expects all members of its academic community to function according to the highest ethical and professional standards. Students, faculty, and the administration of the institution must be involved to ensure this quality of academic conduct. Review the Academic Honor Code and Non-Academic Student Code of Conduct linked below.

- Academic Honor Code
- Non-Academic Student Code of Conduct

Academic dishonesty and misconduct includes, but is not limited to, acts of abetting, cheating, plagiarism, copying homework, fabrication, and misrepresentation. Candidates are expected to honor the UAB Academic Code of Conduct.

DSS Accessibility Statement
UAB is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services for information on accommodations, registration and procedures. Requests for reasonable accommodations involve an interactive process and consist of a collaborative effort among the student, DSS, faculty and staff. If you are registered with Disability Support Services, please contact DSS to discuss accommodations that may be necessary in this course. If you have a disability but have not contacted Disability Support Services, please call (205) **934-4205**, visit their website, or their office located in Hill Student Center Suite 409.

COVID-19 Adjustments for Students: Attendance will be a part of your grade in this course. All absences for COVID-19-related illnesses will be excused. Students concerned about their attendance as a result of COVID-19 should register with Disability Support Services.

UAB Disability Support Services (DSS) has established a process for UAB students to request temporary adjustments based on the impact of COVID-19. The process is similar to the traditional DSS registration procedures for accommodations based on disability. However, these requests will be referred to as "COVID-19 Related Temporary Adjustments." On the DSS website, there is a section (next to the traditional DSS application process) titled "Request COVID-19 Temporary Adjustments" where students can read the process and click to complete an application.

On the application, the student must complete an attestation and identify which of the following category(s) applies to their situation. Students will be allowed to submit documentation to support their requests.

- I am 65 or older.
- My medical provider has determined that I am an individual who is considered high risk according to Centers for Disease Control and Prevention.
- I care for or reside with an individual who has been determined to be high risk according to Centers for Disease Control and Prevention.
- I have tested positive for COVID-19.
- I am requesting adjustments for another reason.

Any questions regarding this process should be referred directly to dss@uab.edu. For qualifying students, DSS staff will create a Notification of Temporary Adjustment Letter (PDF format) which will be provided to students. Students will share this letter, as needed, with instructors to request adjustments.

Non-harassment, hostile work/class environment:
The UAB College of Arts and Sciences expects students to treat fellow students, their Course Instructors, other UAB faculty, and staff as adults and with respect. No form of hostile environment or

harassment will be tolerated by any student or employee. In this class, we will only use constructive criticism and will work to build a community of life-long learners.

Title IX Statement
UAB is committed to providing an environment that is free from sexual misconduct, which includes gender-based assault, harassment, exploitation, dating and domestic violence, stalking, as well as discrimination based on sex, sexual orientation, gender identity, and gender expression. If you have experienced any of the aforementioned conduct we encourage you to report the incident. For more information about Title IX, policy, reporting, protections, resources and supports, please visit http://www.uab.edu/titleix for UAB's Title IX Policy, UAB's Equal Opportunity, AntiHarassment Policy and Duty to Report and Non-Retaliation Policy.

Course Netiquette:
There are course expectations concerning etiquette on how we should treat each other online. It is very important that we consider the following values during online discussions and email.

- **Respect:** Each student's opinion is valued as an opinion. When responding to a person during the online discussions, be sure to state an opposing opinion in a diplomatic way. Do not insult the person or their idea. Do not use negative or inappropriate language.
- **Confidentiality:** When discussing topics be sure to be discreet on how you discuss children, teachers, and colleagues. Do not use names of people or names of facilities.
- **Format:** When posting use proper grammar, spelling, and complete sentences. Avoid using ALL CAPITALS. This signifies that you are yelling. Avoid using shortcuts/text abbreviations such as 'cu l8r' for 'See you later.'
- **Relevance:** Think before you type. Keep posts relevant to the discussion board topic.

On campus guidelines:
UAB United: Safe Entry to Campus
Please go to the UAB United website for guidance and resources related to our safe entry to campus in Fall 2020, including information on:

- Testing
- Academic resources and in-depth information
- Student Affairs resources to support all students (housing, dining, extracurricular activities, parking, etc.)
- Health and safety resources and recommendations for on and off-campus
- Information for graduate students

All students should use the Student COVID-19 Entry Checklist to see what they have to do in order to enter the campus safely. **Non-compliance with the required items will result in students not being able to remain on campus or participate in any in-person classes, meetings, jobs, extracurricular activities, and events.**

GuideSafe Event Passport Class Requirement
Faculty are required to verify all students who are present for in-person instruction have a current Event Passport.

The COVID-19 pandemic is an extraordinary situation requiring significant measures to create a safe educational community. UAB is using GuideSafe™ Event Passport to facilitate access to classrooms, meetings, events, or facilities having ten or more people. Attendees, including faculty, staff, and

students, will complete UAB Healthcheck, a COVID-19 assessment tool, prior to entering their event. An Event Passport is issued based factors from your daily risk level as assigned by the UAB Healthcheck. After you have completed Healthcheck, press the “Passport” button to get your passport. This passport is good for 24 hours. Remember your passport number to access your passport later in the day. Each user is assigned a unique passport number indicating their status for the upcoming event that will show a “Clear” (Green) screen or “Not Clear” (Red) screen. After the 24-hour passport has expired, you will need to complete Healthcheck again. Each passport will have a time and date to ensure validity. Learn more at UAB GuideSafe Event Passport.

Syllabus: This syllabus is subject to changes announced on Canvas.