

# CONCEPTS OF MATHEMATICS I

MATH 1350.001 | SPRING 2022

## Course Description

When you see a word problem on a test, do you confidently start the problem, sure of your abilities to solve it? Or do you groan inwardly and skip it in the hope the next problem is easier? Do you know people who are terrified of word problems? Do they wildly guess an answer or simply skip the problem entirely.

As a teacher, you will be teaching problem solving. This includes solving word problems. In this class, we will study problem solving techniques and models. It is not good enough to know how to multiply. We must also recognize the real world situations where multiplication is required. We will study topics in logic, set theory and conceptual foundations of basic number systems to give you the foundational basis to teach problem solving.

This course satisfies the Core requirement of Interdisciplinary Studies majors only. It has a prerequisite of MATH 1314 College Algebra or the equivalent.

## Website

You will be using Canvas. Go to [www.utt Tyler.edu/canvas](http://www.utt Tyler.edu/canvas) to log into Canvas using your regular patriots account. If you have enrolled in the course, you will have access to the website. You will find important documents, grades, lecture notes, and announcements on Canvas. In general, I will notify you by email and on Canvas if there are any disruptions or changes to our class.

## Textbook and Materials

We will be using Mathematical Reasoning for Elementary Teachers 7<sup>th</sup> edition by C Long, D DeTemple and R Millman, Pearson Education, 2012. ISBN-13 978-0-13-476882-4, ISBN-10 0-13-475882-X Looseleaf or online editions are fine.

You will need a package of  $3 \times 5$  note cards. (Plain white or colorful)

**Instructor:** Dr. Deborah Koslover

**Office:** RBN 4010

**Email:** [dkoslover@utt Tyler.edu](mailto:dkoslover@utt Tyler.edu)

**Classroom:** RBN 4025

**Meeting Time:** TTh 2:00 – 3:20 PM

**Office Hours:** MTTh 1-1:50 PM and  
MW 4 – 5 PM or by appointment.

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*Attendance is mandatory and records will be kept. Notify Dr. Koslover in advance if you must miss a class, be late or leave early. (University Policy: Class attendance is the responsibility of the student. When a student has a legitimate absence, the instructor may permit the student to complete missed assignments. In many cases class participation is a significant measure of performance, and non-attendance may adversely affect a student's grade. When a student's absences become excessive, the instructor may recommend that the student initiate a withdrawal.)*

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# Learning Outcomes

At the conclusion of this course, you will be able to

1. Apply Polya's Method to solve problems involving all concepts covered in the course.
2. Demonstrate a proficient conceptual understanding of arithmetic, algebraic reasoning, and proportional reasoning.
3. Analyze and solve problems involving topics from number theory, including divisibility, primality, GCD and LCM
4. Use different models and algorithms for performing and describing arithmetic operations with whole numbers, integers, rational numbers, and decimal numbers.
5. Solve and explain problems involving proportional reasoning.
6. Analyze and troubleshoot samples of student work, being able to give proper feedback.
7. Give detailed explanations of problem solving techniques for applications in elementary and middle school mathematics, as it pertains to the concepts mentioned above.
8. Identify the connections between the different mathematical concepts covered, with regard to elementary and middle school mathematics.



## Course Evaluation

The first thing that you need to understand about evaluation in this class is that the answers are worth almost nothing. You already know elementary school mathematics and should be able to get the answers to any question that I ask. However, this class is not about answers. It is about the **concepts and techniques** used to find the answers. Showing that you can apply these concepts and techniques is what you will be graded on. If you get an answer right on a test, but you use a technique different from the one requested, you will get say 0 or 1 point out of 10.

At the end of the semester, you will find your final grade on [my.uttyler.edu](http://my.uttyler.edu). It will also be posted on Canvas.

A final course grade of

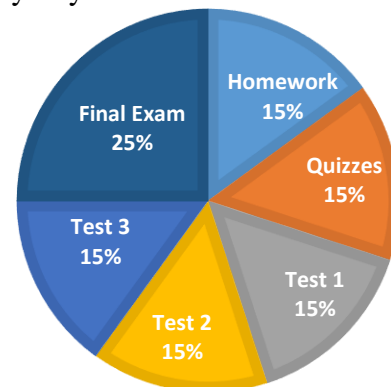
90% is guaranteed to be at least an A

80% is guaranteed to be at least a B

70% is guaranteed to be at least a C

60% is guaranteed to be at least a D.

All grades below 60% will be F.



# The Plan



**(15%):** Homework will be assigned each class period. Most homework problems will consist of three parts.

1. A reading assignment, “due” the next class period.
2. Notecards, due in class on the day homework is due. More on these below.
3. Conventional homework problems, due on Thursday at 5 AM.

Homework must be turned on Canvas. A link will be posted on Canvas for you to submit your assignments. You must scan your homework and submit it as a pdf file. Some free phone scanners are posted on Canvas. Photographs will not be accepted.

*Striving for success without hard work is like trying to harvest where you haven't planted.*  
\_David Bly



**(15%):** There will be five quizzes. Please see the calendar at the end of the syllabus for dates. The quizzes will be easier than the tests. If you have 3 or fewer unexcused absences, your lowest quiz grade will be dropped.

*It's not that I'm so smart, it's just that I stay with problems longer.* \_Albert Einstein

**TESTS (15% each) and FINAL EXAM (25%):** There will be three tests and a final exam. These exams will test your knowledge of the material taught in the class and practiced on the homework. The final exam will be comprehensive, but will emphasize material in the final weeks of the course. No tests will be dropped. See Important Dates below for the schedule.

*Success is dependent on effort.* \_Sophocles



**Final Exam:** (Tentative) Tuesday , April 26, 2:00 – 4:00 PM

**Please don't plan your travel to start before the date the final exam is scheduled!**

## Notecards

While doing your homework, you should make *hand-written* notecards with **definitions, theorems, formulas and a few miscellaneous topics** which I will mention in class. These cards should be turned in during the class period on the day homework is due (make sure your name is on them). I will not accept late cards unless you have a doctor's note, notification from the university of your absence or a positive Covid test. I will review the cards and stamp them. Stamped cards can be used on quizzes and tests. You may **not** write sample problems or methods of doing problems on the cards. If a card has a mixture of allowed and forbidden material, I will put a note on it and you will be allowed to recopy and resubmit it with the allowed material during the next class period.

# Make-ups

Make-ups for **documented** absences that are **required** as part of a UT Tyler obligation (e.g. athletes participating in an event, participating in a debate contest, etc.) or for religious observation will be granted. For all make-ups of this type, prior notification of at least one week and documentation are required.



Make-ups will be allowed for the following excused absences.

- 1) Illnesses, with a doctor's note, no exceptions.
- 2) Your child's illness, with a doctor's note.
- 3) Court appearances, including citizenship court, with documentation
- 4) Weddings, funerals or military advancement with documentation **and** a photograph showing that you attended the event.

## Other important information

Now is the time to think about what grade you "need" to make in this class. Three weeks before the end of the semester is too late to realize that you are not on the road to earning that grade. There will be no extra credit or special assignments for any reason. No tests or quizzes will be dropped. Take this class seriously. Attend every session and study. Make use of my office hours and the tutoring that is available to you.

**Cell phones and other electronic devices:** Please set your cell phones to silent mode. If you are expecting an emergency call, please notify the professor in advance, sit near the door, and answer the phone outside. You will not be allowed to wear electronic devices (except hearing aids) during an exam. During tests, cell phones must be turned off and placed in sight on your desk.

## Covid Related Issues

Let me know if you will be missing class, before class if possible. If we have class cancellations or if the university gets shut down, I may move test or quiz dates. I will email you and post an announcement on Canvas in these circumstances. If we get into a situation where we have to do online tests or quizzes, you will need a camera and microphone. I must be able to see your face during the exam. Your phone will work, but it will be easier for you if you can use your computer. Additionally, in this case, some quizzes or tests may be changed to projects.

If you have any special concerns, problems or other issues, please let me know as soon as possible so that we can craft solutions.

# Calendar

JANUARY			FEBRUARY			MARCH			APRIL		
MON	TUE	THU	MON	TUE	THU	MON	TUE	THU	MON	TUE	THU
10	11	13	31	1	3	28	1	3	4	5	7
First Day			7	8	10	7	8	20	11	12	14
17	18	20			Test 1	Spring Break					
MLK Day		Quiz 1	14	15	17	14	15	17	18	19	21
24	25	27									Quiz 5
Census Day			21	22	24	21	22	24	25	26	28
					Quiz 3			Quiz 4	Study day	Final 2:00-4:00 PM	
						28	29	31			
						Drop day					

Concepts will not be held on the grayed out days.