Concepts of Modern Mathematics I, MATH 1351

Meeting Times: 9:05-10:00 am MWF in RBN 4032

Last day to withdraw: Monday, March 28, 2022

Instructor: Nathan Smith

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Office Hours: TBA;

Text: *Mathematical Reasoning for Elementary Teachers*, 7th edition, by Long, DeTemple, and Millman.

Course Topics: Proportional reasoning, geometry, and elementary probability/statistics.

We will be looking down, as adults and prospective educators, at much of the mathematics taught from grades K-8 according to the Texas Essential Knowledge and Skills standards. Being able to "do the math" is not the only skill needed for effective instruction.

What will you do when you explain a concept to a student using the method that is clearest and most obvious to you and the student doesn't understand? Will you repeat what you said in exactly the same words, only louder? What if the student still doesn't understand?

How will you answer a student who asks a question and you don't immediately know the answer? Will you say, "That's not part of this class. You'll learn that in another class."? If so, how will you keep this student engaged, learning and not causing mischief?

Our purpose is to have you look at mathematics from different viewpoints, to see that it can be interpreted and learned in different ways. This will allow you to explain concepts in multiple ways to address the needs of students who think differently from you.

Additionally, this class will train you how to attack problems that you haven't seen before. You will be able to guide students through the process of addressing challenging problems. Your students will learn, by example, from you how to think critically and how to move forward when addressing new material

Student Learning Outcomes: By the end of the course students should be able to:

1. Analyze and solve problems using a variety of algebraic approaches.

2. Recognize the relationship between algebra and geometric problems and use that knowledge to solve them.

3. Know the basic definitions and classification of geometric objects, be able to solve problems using them, and be able to use appropriate units.

4. Know the basics of probability and know how to make basic graphic and numerical data summaries and be able to use and interpret these in a real-world context.

Grading:

- Test1: $\frac{1}{4}$ of your semester grade.

- Test2: $\frac{1}{4}$ of your semester grade.

- Final exam: $\frac{1}{4}$ of your semester grade.

- Homework and Class assignments: $\frac{1}{4}$ of your semester grade.

Attendance: In order for a student to be successful at meeting the student learning outcomes listed above the student must be present. I will be posting things we do in class on canvas for students who need to miss class to access. Obviously if you are ill with coronavirus or tuberculosis or something you shouldn't be coming to class and we'll need to make accommodations, but I have no intention of broadcasting every class on canvas this semester.

Missed work: It is not expected that you will miss a test. If an emergency situation or university-sanctioned event forces your absence on the day of the test and if you have discussed the situation in advance with the instructor, your final exam grade will be used to replace your test. Because much of the learning in this class revolves around discovery learning activities undertaken during the class time, attendance is extremely important. I am not responsible enough to handle late work (getting it on the same pile as other papers from the same assignment, grading it, recording the grade, etc.).

Student Academic Conduct: It is your responsibility to learn the material in this course for your own benefit. You should not let this discourage you from working together on your homework but in the end what you turn in should reflect your understanding, not just be copied from someone else. *During the tests, a code of honor will apply under which students are to work alone and neither give help to others nor receive help from any sources.* Students are also expected to help enforce this code. Students are encouraged to obtain a copy of *A Student Guide to Conduct and Discipline at UT Tyler*, available in the Office of Student Affairs.