

Foundations of Mathematics (MATH 3425)

Meeting Times: 9:30-10:45 am MWF in BUS 151

Last day to withdraw: Wednesday, March 24

Final Exam: Wednesday, May 5, 10:15-12:15

Instructor: Nathan Smith

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Web Page: <http://math.utt Tyler.edu/nathan/>

Office Hours: To be announced

Text: *Foundations of Mathematics*, by Mitchell and Pace.

Course Topics: Study of elementary logic, intermediate set theory, relations, functions and countable number systems.

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

1. Write complete, correct, and coherent proofs (critical thinking & communication)
2. Understand and use some fundamental mathematical concepts such as logic, techniques of proof, set theory, and the principle of mathematical induction.

Grading: Your grade will be determined by your performance in the following areas:

1. Tests numbers one and two
2. Homework
3. In-class presentations
4. The Final Exam

You can choose your own percentage value for each of these that will be used to compute your overall grade (this must be done before the first test) according to the following rules:

- The tests numbers one and two category will weight each of the tests evenly and the two tests will constitute one score toward your final grade.
- The sum of the percentages for category (1) through (4) must be 100%
- No single category may be weighted more than 35%

- No single category may be weighted less than 15%

In-class Presentations: In-class presentations are done by the student, typically on the board, but if you prefer to use a document camera or something else that is fine. Your score on the in-class presentations will depend upon the point value available for the particular presentation (determined by the difficulty level of the problem and announced when the problems are assigned), the correctness and lucidity of your presentation, and your responses to questions from other students and your instructor. Your overall score for the in-class presentation part of your final grade will be computed by taking your score (let's call it y) and the larger of a preset target value (let's call this p , 50 is my best guess for the value of p now, but I reserve the right to change that if it ends up being too high) and the maximum total achieved by a student in the class (let's call this m), and assigning you the ratio $\frac{y}{\max(p, m)}$.

Homework Help: You are always welcome to come by my office for help with homework. I will be in my office during the posted office hours. If I am in my office you are also welcome to just drop in, however I reserve the right to be busy doing something else and if I can't help you immediately we can usually find a time that is better for both of us. Before coming to my office for homework help, you must have at least attempted the problems that you have questions about. You must bring your work so that I can examine it with you to determine your strengths and weaknesses. For this reason, I strongly encourage you to use a notebook or folder in which you keep all of your work. You should never come to my office for help without it.

Warning: One cannot learn mathematics at this level by merely watching others do it. Rather, one has to "dig into" the material oneself. This includes reading the book and thinking about and working homework problems, both alone and with others. This class is almost certainly more difficult than the hardest mathematics class you have taken up to this point, and in order to be successful you will have to work harder than you have worked in other courses. You will probably find it necessary to work almost daily on this course, certainly work will be necessary between each class meeting.

Missed work: It is not expected that you will miss the midterm. If an emergency situation or university-sanctioned event forces your absence on the day of the midterm and if you have discussed the situation in advance with the instructor, your final exam grade will be used to replace your midterm.

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 midterm exams and the final exam, 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.

University Policies: For University policies concerning Students' Rights and Responsibilities, Grade Replacement/Forgiveness, State-Mandated Course Drop Policy, Disability Services, Student Absence due to Religious Observance, Student Absence for University-Sponsored Events and Activities, and the Social Security and FERPA Statement please see: <http://www.uttyler.edu/academicaffairs/syllabuspolicies.pdf>.