

**MATH 250 Sec. 003 TuTh 10:00 - 11:15,  
Room: MSC W304**

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**Instructor:** David Zureick-Brown, W430 Math and Science Center, dzb@mathcs.emory.edu

**Office Hours:** W 4:30-6:30pm in MSC E406; see website for occasional changes

**Textbook:** “An Introduction to Abstract Mathematics”, Bond and Keane

**Website:** <http://www.mathcs.emory.edu/~dzb/teaching/250Spring2016/>

**Course details:**

We will cover the following topics.

- Logic – statements, negation, converse, etc.
- Sets, relations, functions – the building blocks of mathematics
- Techniques of proof – proof by contradiction, induction, cases;
- Mathematical prose and rigor – how to write mathematics correctly and in complete sentences.
- Cardinality – different sizes of infinity
- Numbers – what they are, transcendental numbers vs. algebraic numbers (i.e., the difference between  $\pi$  and  $2^{(1/2)}$ )

This class will meet 28 times. I will cover roughly one section of our text each class. Some sections will be skipped and many will be covered out of order.

There will be lots of short in class activities in addition to lecturing.

**Grade Policy:** There will be one midterm exam and one quiz. The midterm is worth 25 percent, and the quiz is worth 10. The final exam will be comprehensive and will count for 30 percent. Homework is worth 35 percent. Seriously! If you do not stay on top of the homework, you will have a bad time in this class.

The midterm and quiz dates below are tentative (and may be adjusted if the pace of the course is adjusted), but the date of the final exam is set in stone; make your winter travel plans accordingly. If you have a conflict with the final exam (e.g., another final) please let me know ASAP.

Homework	35%	(Weekly, usually due on Thursday)
Midterm Exam	25%	(Feb. 25 (Tentative))
Quiz	10%	(April 5, (Tentative))
Final Exam	30%	(May 2, 8-10:30am, W301)

**Calculators, notes, and textbooks are not allowed in exams or quizzes.**

**Homework:** There will be homework assigned every week. There will be many simple problems, checking your understanding of the definitions, that will be collected and graded for completeness but not correctness. In addition to this, most weeks there will be a number of proofs assigned. You are expected to write them up very carefully. I will very carefully grade 1-2 of these per week; re-writes will be allowed and in fact expected, and students will be able to recover up to half of the missed points. Homework assignments will typically be worth 20-40 points, depending on the length of the assignment. Only your top 10 homework grades will be counted towards your final grade.

The homework assignments are available at the course web page, and will be updated after each lecture. **Please check the webpage for changes before beginning the assignment.**

**Honor Code:** Remember that copying another student's work is a violation of the Honor Code and will be treated as such. If you must leave class during an exam for **any reason**, please leave all of your belongings (**including your handheld supercomputer phone!**).

For homework: you are free to consult any sources (animate or inanimate) while doing your homework (working in groups is encouraged!), but if you use anything (or anyone) other than your class notes or the texts listed above, you should say so on your homework – please state at the end of every problem any sources used.

On the other hand, you are expected to make an honest attempt to do every problem on your own before consulting other sources. Remember that copying another student's work is a violation of the Honor Code and will be treated as such.

A good rule of thumb to avoid plagiarism is the following – when doing the final write up of a problem, do not have any text books, web pages, or classmate's write up in front of you. If you get stuck when writing up an assignment, go back and look again; just make sure that you organize the mathematics in your head before writing a proof rather than copying a solution from some source. **This is a generous homework policy. Please do not abuse it.**

**Overloads:** Ken Mandelberg handles all overloads for the department. The overload form is available at <http://www.mathcs.emory.edu/overload-policy.pdf>.