

MATH 250 Sec. 000, 004 TuTh 10:00 - 11:15, 2:30-3:45
Room: MSC W302 (000), W304 (004)

Instructor: David Zureick-Brown, W430 Math and Science Center, Phone: (608) 616-0153

Office Hours: M 4:30-6:30 PM (Tentative), see website for occasional changes

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

Website: <http://www.mathcs.emory.edu/~dzb/teaching/250Fall12012/>

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; non-constructive proofs, ”consider a minimal X” proofs, pigeonhole principle
- Cardinality – different sizes of infinity
- Numbers – what they are, transcendental numbers vs. algebraic numbers (i.e., the difference between π and $2^{(1/2)}$)
- Mathematical prose and rigor– how to write mathematics correctly and in complete sentences.

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 two midterm exams. Each of the two midterm exams is worth 20 percent, for a total of 40 percent of the final grade. The final exam will be comprehensive and will count for 25 percent. Homework is worth 25 percent. Seriously! If you do not stay on top of the homework, you will have a bad time in this class. There will be a number of short in class quizzes; together they will be worth 10 percent.

The midterm 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 summer travel plans accordingly. If you have a conflict with the final exam (e.g., another final) please let me know ASAP.

Quizzes	10%	(Sporadic)
Homework	25%	(Weekly)
Midterm Exam I	20%	(Oct 2 (Tentative))
Midterm Exam I	20%	(Nov 15 (Tentative))
Final Exam	25%	(000 – Mon, Dec 17, 4:30-7:00, W302) (004 – Fri, Dec 14, 8:30-11:00am, W304)

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.

The homework assignments are available at the course web page, and will be updated after each lecture.

Quizzes: There will be 2-5 quizzes throughout the semester, dates and content to be announced. The schedule of quizzes will be available at the course website.

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. To request an overload you must send an email to Dr. Mande lberg (km@mathcs.emory.edu) with your request. He is the only person who can approve an overload request.