

MAT261: Introduction to Abstract Mathematics, Fall 2008

Professor: Jerry Farlow, 332 Neville

Text: A Taste of Pure Mathematics by Jerry Farlow

The book is still in “note” form and can be found on my webpage at no cost. I have printed out copies of the book at www.lulu.com and will give you copies at cost (\$10) on the first day of class if you prefer.

I will collect homework every Monday, which consists of the assigned problems below, and which will constitute 25% of your grade. You can work the problems with other students but you should write up the homework on your own. The homework grade will depend both on mathematical accuracy and creativity as well as neatness and exposition. I will be extra impressed if the homework is typed using a math add-on to your word processor. MathType can be found at <http://www.dessci.com> for \$99 which can be used as an add-on to MS Word.

Another 25% of the grade will be determined on class attendance. I will hand out a slip of paper each day for the student to sign. If you miss 0-3 times you get an A+, 4-5 a B, 6-7 times a C, 8-9 times a D, 10-more an E. No exceptions, daily attendance is critical understanding the material in this course. This material is NOT easy. The material in this course is not the “cook book” mathematics you studied in calculus.

The other 50% of the grade will be based on 4 exams, each counting 100 points and a final exam. There will be no make-up tests but the lowest grade of the 4 exams will be thrown out. That said, WILL be expected to take the last exam. The final exam will be an out-of-class take-home test you can do with your group that counts for 200 points.

Office Hours: I will meet with you individually or in groups at any time. My scheduled office hours are 10 AM on M,W,F and 8AM-11AM on Thursday. If you cannot make my scheduled office hours, you can always make an appoint to meet with me. It seems to be more beneficial if we meet in groups of 2-3-4.

Class info it also posted on my webpage at <http://germain.umemat.maine.edu/faculty/farlow/index.htm>

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Chapter 1. Logic and Proofs

Section	Problems
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Section 1.1	1 (any 10), 2a), d), g), k), 4 a), g), 5b), 9
Section 1.2	1,5, 9,12
Section 1.3	1, 2, 5a), 5b), 8a), 11
Section 1.4	1a), 1c), 2a), 5a), 5a), 7
Section 1.5	1, 2a), 2c), 3a), 3d), 4b), 4i),5e)
Section 1.6	1a), 1h), 3,

Chapter 2. Sets and Combinatorics

- Section 2.1 2, 3a), 3b), 3g), 3h), 5c), 8, 10
- Section 2.2 1e), 1h), 2c), 6,7
- Section 2.3 1c), 1f), 2a), 2g), 5
- Section 2.4 Combinatorics: Online: 1a), 1c), 3c), 4, 16a)

Chapter 3 Relations

- Section 3.1 1a), 3a), 4a), 5b), 8
- Section 3.2 1c), 3, 5a)
- Section 3.3 1a), 2b), 3, 8
- Section 3.4 Graphs, Online 1,2,10,18,21,22
- Section 3.5 Directed Graphs, Online 1,2,6,7,11

Chapter 4: Functions

- Section 4.1 1, 2c), 3a), 5, 13
- Section 4.2 1a), 2a), 3c), 10
- Section 4.3 1a), 2a), 2f), 6a), 14a)

Chapter 5: Analysis

- Section 5.1 5, 7, 8
- Section 5.2 1e), 1k), 2a), 2d), 5, 7
- Section 5.3 1e), 3c), 3d), 4e), 4f), 8a), 8c)
- Section 5.4 1e), 7, 9, 10
- Section 5.5 Complex Numbers, Online 1a), 1f), 2b), 3a), 8b), 9a), 13

Chapter 6: Algebra

- Section 6.1 1 (just pick out a few), 2d), 4a),6b)
- Section 6.2 1a), 1f), 3, 12
- Section 6.3 1a), 3, 5
- Section 6.4 1a), 5, 10

Chapter 7: Countable and Uncountable Sets

- Section 7.1 1(look at a few), 2,3
- Section 7.2 1b), 1f), 1h), 2a), 3
- Section 7.3 Cantor's Theorem: Online 1,4,6