

MHF 3302 – Logic and Proof in Mathematics, Fall 2014

Days & Times: MW 9:00–10:20 in MSB 108
Professor: Jason Swanson (jason@swansonsite.com)
Office: MSB 202E
Office Hours: MW 2:45–3:45, or by appointment
Course webpage: <http://math.swansonsite.com/14w3302>
Textbook: Mathematical Proofs: A Transition to Advanced Mathematics,
Third Edition, by Chartrand, Polimeni, and Zhang

Course description: Introduction to set theory, logic, and various proof techniques used in mathematics along with concepts such as relations, functions and cardinalities. We will cover: Chapter 1.1-1.6 Sets, Chapter 2.1-2.10 Logic, Chapter 3.1-3.4 Direct Proof and Contrapositive, Chapter 4.1, 4.3-4.5 Proofs involving divisibility, real numbers, and sets, Chapter 5.1-5.4 Existence and proof by contradiction, Chapter 6.1, 6.2, 6.4 Mathematical induction, Chapter 8.1-8.4 Equivalence relations, Chapter 9.1, 9.3-9.6 Functions, Chapter 10.1-10.3 Cardinalities.

Grading: Homework problems will be assigned regularly. Homework is worth 10% of the overall grade in the course. There will be three in-class tests and a comprehensive final exam. The tests are tentatively scheduled for September 17, October 15, and November 12. Each of the three tests is worth 20% of the overall grade, and the final exam is worth 30%. The required threshold for an A is 90%; for a B, 80%; for a C, 70%; and for a D, 60%. Below 60% is an F. If necessary, however, these thresholds will be lowered to adjust for the difficulty levels of the homework, tests, and final exam.

Make-Up Policy: There are no make-up exams. In the case of documented absences due to family emergencies, illness or official university functions, the final exam will be used as a make-up exam.

Writing requirements: In this class, you will write proofs. All proofs must be handwritten on lined paper, with clean, even edges. Proofs must be double-spaced and single-sided. Proofs must be written professionally, using paragraphs, complete sentences, correct grammar and punctuation, and so on. Isolated mathematical symbols and excessive use of logical shorthand is not acceptable. Credit will not be given for writing that fails to conform to these requirements. If you wish to typeset your proofs, you must obtain prior approval from the professor, and your proofs must be typeset in L^AT_EX.

Blue books: Blue books will be required for every test, as well as the final exam.

Final exam: The final exam is currently scheduled for Wednesday, December 3, 2014, from 7:00 am to 9:50 am, in MSB 108.

Attendance: If you must miss a class, it is your responsibility to find out all information from the class you missed, including any announcements that were made.