

FOUNDATIONS OF ADVANCED MATH 9:00AM OR 1:00PM MWF SPRING 2007 SH 306 OR 309

- Instructor: Jonathan White
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- Web Page: <http://www.coe.edu/~jwhite/>
- Office: Stuart 316
- Office Hours: MTWF 10:00-10:50am and by appointment
- Office Phone: 399-8280
- Home Phone: 841-5111 (between 7am and 10pm)
- Text: *Sets, Functions, and Logic: An Introduction to Abstract Mathematics*, 3rd ed., Devlin
- Problem Sets: There will be several problem sets during the semester. Together these will be worth 200 points (25% of the final grade)
- Daily Work & Presentations: Day-to-day class participation and presentations will be a prominent aspect of this class, and together will be worth 200 points (25% of the final grade)
- Exams: There will be four small in-class exams administered during class time. The dates of these are indicated in the schedule on the back side of this sheet. These exams will be worth 50 points (6.25% of the final grade) each.
- The final exam will be held during finals week at the date and time indicated on the back side of this sheet. The final will be worth 200 points (25% of the final grade).
- Grading: Grading will approximately follow a 90% A, 80% B, 70% C, 60% D scale.
- Makeups: Late work of any sort will generally not be accepted, and if accepted due to extenuating circumstances will generally be subject to a penalty of 20% of the possible points for each day past due.

This class is intended to achieve several goals, but primary among them is to give some accurate idea of what mathematics actually is. The specific content of the course is secondary, but my hope is to give a good exposure to many topics which are helpful or necessary to further study in mathematics and related fields. These include, but are not limited to, the basics of set theory, functions, logic, and combinatorics.

This course will be profoundly different, both in subject matter and in daily conduct, than what most of you are accustomed to in a math class. Please understand that it's different on purpose, with very clear reasons in mind. You will probably have to find different ways to learn things in this class than in any math class you've taken before. Don't let that be overwhelming, and remember that I'm around to help.

Tentative Schedule

		Friday, January 12 th §1.1 - §1.5
Monday, January 15 th §2.1 The Language of Math	Wednesday, January 17 th §2.2 Truth and Implication	Friday, January 19 th §2.3 Quantification
Monday, January 22 nd §2.4 More on Quantification	Wednesday, January 24 th §2.5 Proof Techniques	Friday, January 26 th §2.5 Proof Techniques
Monday, January 29 th §2.6 The Integers	Wednesday, January 31 st §2.7 Mathematical Truth	Friday, February 2 nd Examlet 1
Monday, February 5 th §3.1 Sets	Wednesday, February 7 th §3.2 Operations on Sets	Friday, February 9 th §3.3 Real Intervals
Monday, February 12 th §3.4 Absolute Values	Wednesday, February 14 th §3.5 Inequalities	Friday, February 16 th §3.6 Arbitrary \cup and \cap
Monday, February 19 th §3.7 Cartesian Products	Wednesday, February 21 st §3.8 History of Set Theory	Friday, February 23 rd Examlet 2
Monday, February 26 th §4.1 Introduction to Functions	Wednesday, February 28 th §4.2 Examples of Functions	Friday, March 2 nd §4.3 History of Functions
Spring Break		
Monday, March 12 th §4.4 Injectivity and Surjectivity	Wednesday, March 14 th §4.5 Composition and Inverses	Friday, March 16 th §4.6 Countability
Monday, March 19 th §4.7 Uncountability	Wednesday, March 21 st The Continuum Hypothesis	Friday, March 23 rd Examlet 3
Monday, March 26 th §5.1 Binary Relations	Wednesday, March 28 th §5.2 Properties of Relations	Friday, March 30 th §5.3 Relations as Sets
Monday, April 2 nd §5.4 Relations as Graphs	Wednesday, April 4 th §5.5 Equivalence Relations	Friday, April 6 th §5.6 Functions as Relations
Monday, April 9 th §5.7 \mathbb{R}	Wednesday, April 11 th Symposium – No Classes	Friday, April 13 th Examlet 4
Monday, April 16 th §5.8 Completeness	Wednesday, April 18 th §5.9 Sequences	Friday, April 20 th The Peano Axioms
Monday, April 23 rd The Peano Axioms	Wednesday, April 25 th The Peano Axioms	
Final Exam – Monday April 30 th 11am or Tuesday May 1 st at 11am		

Any students with disabilities which might affect their performance in this class should contact me as soon as possible to arrange accommodations.

Coe's faculty has adopted an academic integrity policy. It is your responsibility to understand and follow it.

Diversity, in all its forms, is valuable.