

Math 3000, Introduction to Abstract Mathematics Spring 2010

I've never heard of this course. It's only been offered one time before, during Spring 2009 (as Math 300). It was created because several upper division courses all review the same foundational material, wasting time. Now this is all in one place, in a more thorough, unified, and entertaining package. The main goal is for students to learn to think abstractly about sets, functions, numbers – and to gain experience writing precise proofs using correct mathematical language.

The topics of Math 3000 are assumed in other upper division courses.

Who takes it? Math 3000 is suggested, but not required, for students moving into upper division mathematics. Some well-prepared students may already have experience with this material, or may be able to learn it quickly when it arises in other places.

Students who have already passed Math 331/3310, 354/3354, or any 500/5000-level course with a B or better are *not* eligible to enroll in Math 3000.

The prerequisite is Math 1320 (Calculus II) or the equivalent.

Give me some details. In Spring 2010 it will be taught by David Sherman, an assistant mathematics professor with a checkered past, probably MWF 10-10:50. The required text is the colorful Introduction to Mathematical Structures and Proofs by Gerstein, available for \$23 new on Amazon. It is likely that a TA will lead a fourth hour of discussion.

The course will cover most of the first four chapters of the textbook, with additional material thrown in according to time and taste. In broad terms, the main topics are *logic, sets, functions and relations, equivalence relations and partitions, induction, and cardinality.*

Are there any weird grading policies? Not really, but the instructor does require attendance and participation in lecture. Sometimes students will do group work during class, benefiting from a happy, conversational atmosphere. Not surprisingly, there will be a fair amount of regular homework. And exams will be taken without calculators or notes.

I'm not sure. There are some other good courses offered at the same time: Filmmaking in the Ancient World, Pig Latin III, Quantum Sociology.... Take this course instead! Every student who has taken Math 3000 with Sherman, and also gone over Niagara Falls in a barrel, has been featured on the cover of *Time* magazine. And every student who will take it this spring will understand how the truth of the preceding sentence follows from its syntactic form as universal quantification of a conditional in which the hypotheses are never simultaneously satisfied.