

Math M114S: Introduction to Set Theory

Catalog Description

M114S. Introduction to Set Theory. (Formerly numbered M112.) (Same as Philosophy M134.) Lecture, three hours; discussion, one hour. Prerequisite: course 110A or 131A or Philosophy 135. Axiomatic set theory as framework for mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

General Information

Math 114S covers the basic facts about abstract sets, including the axiom of choice, transfinite recursion, and cardinal and ordinal arithmetic. It also makes a serious effort to explain how axiomatic set theory can be viewed as a "foundation of mathematics" --- and, in particular, what this means.

Math 114S is especially useful for:

Undergraduate students who are preparing for graduate study in pure mathematics and graduate students in mathematics who have not had an opportunity to learn set theory in their undergraduate work. Real analysis, in particular, looks a lot more real if you know cardinal arithmetic and understand the meaning and uses of the axiom of choice.

Undergraduate students in mathematics or computer science who are preparing for graduate study in theoretical computer science, and CS graduate students who are veering towards theory and need to understand the mathematical justification of fixpoint theorems and the like.

Philosophy students with an interest in the philosophy of mathematics and a good mathematical background.

There is a strong tradition of research in logic --- especially set theory --- at UCLA, and both the Mathematics and Philosophy Departments offer a rich graduate program of study in the field. At the undergraduate level, Math 114S is regularly offered once each academic year. Recently the Mathematics Department has alternated with the Philosophy Department in giving the course. In 1994-1995 and in 1996-1997 the course was taught by Donald Kalish of the Philosophy Department. In 1995-96 and in 1997-98, it was taught by Yiannis Moschovakis of the Mathematics Department. It will be taught 1999-2000.