COURSE ANNOUNCEMENT – SPRING 2010

MATH 446 – AXIOMATIC SET THEORY

MWF 2:00-2:50

INSTRUCTOR: David W. Kueker
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DESCRIPTION: Some of the most exciting developments in mathematics in the late 19th and early 20th centuries were in set theory:

rigorous treatment of sizes of infinite sets, leading to cardinal and ordinal numbers;
discovery of the once controversial but now widely used axiom of choice;
formulation of the view that axiomatic set theory provides a foundation for mathematics.

All of these developments will be discussed in this course, an introduction to modern set theory suitable for the advanced undergraduate or beginning graduate student.

PREREQUISITES: MATH 403 or 410 or consent of the instructor.

TEXT: Y. Moschovakis, Notes on Set Theory, Second Edition, Springer, 2006.

COURSE WORK: Homework, two midterm exams, final exam.

TOPICS: 'Naive' set theory and its paradoxes. The axiomatic approach to set theory. Constructions with sets, including the natural numbers. Well-ordered sets. The axiom of choice and some of its consequences. Ordinal and cardinal numbers.