

CALIFORNIA STATE UNIVERSITY, SACRAMENTO
Department of Mathematics and Statistics

SYLLABUS

Math 162: Set Theory

Prerequisite: Math 108

An axiomatic study of set theory. Topics usually considered include: relations and functions; set theoretical equivalence; finite and infinite sets; cardinal arithmetic; ordinal numbers and transfinite induction; variants of the Axiom of Choice. Offered Spring only.

OUTLINE:

1. Paradoxes of set theory and the necessity of considering an axiomatic approach.
2. Axioms and operations
3. Relations and functions
4. Natural numbers, Peano's postulates
5. Construction of the rational and the real numbers (sketch)
6. Order and well order
7. Induction and recursion
8. Cardinal numbers and the axiom of choice, Zorn's Lemma.
9. As time permits, ordinals and order types.