

## SM291 Syllabus Spring 2009

**Textbook:** Ethan D. Bloch, *Proofs and Fundamentals: A First Course in Abstract Mathematics*, Birkhäuser, 2000.

**Course:** The course will cover most of chapters 1 - 4 and 6 of the textbook and other topics at the instructor's discretion.

**Assignments:** Homework problems are not included on the syllabus and will be assigned in each class by your instructor.

Sections	Topic	Number of Classes/Running Total
1.1-1.5	Informal Logic: statements, relations between statements, valid arguments, quantifiers	8/8
2.1-2.6 6.3	Proof Techniques: direct proofs, proof by contrapositive and contradiction, cases, if and only if, quantifiers, proofs by induction, writing mathematics	12/20
3.1-3.4	Sets: basic definitions, operations, indexed set families	6/26
4.1-4.4	Functions: definition, image and inverse image, composition, inverse functions, injectivity, surjectivity, bijectivity	7/33
6.1-6.2	Cardinality: definition, finite sets, infinite sets, countably infinite, countable, uncountable, the cardinality of the number systems	4/37
	Tests (3)	3/40
	Review Days	4/44