

Math 2283 - Honors Logic  
 Fall 2018 - Schedule  
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Week	Chapter	HW	Topics
Part I - Logic and the Deductive Method			
1	1	Summary - Sections 1.1-1.5 Problems 1-13	The basic logical building blocks – sentences, sentential functions, designatory functions, variables - free and bound, quantifiers
2	2	Summary - Sections 2.1-2.7 Problems 1-10	Logical connectives - and, or, if, iff, and an introduction to logical laws
3	2	Summary - Sections 2.8-2.10 Problems 11-21	Truth tables, conditional equivalencies, and how to build a complete proof as well as the consequences of false
4	3	Summary - Sections 3.1-3.2 Problems 1-3	An introduction to the theory of identity, the rule of replacement, and proofs of laws using identity
5	3	Summary - Sections 3.3-3.5 Problems 4-13	Determining the validity of sentences with identity, both in mathematics and in everyday language, and using existential and universal quantifiers to construct numerical quantifiers
6	4	Summary - Sections 4.1-4.4 Problems 1-16	Basics about classes (sets), the element symbol and its role in relating elements to sets, relations between sets
7	4	Summary - Sections 4.5-4.6 Problems 17-27	Operations on classes, and the first proofs involving sets, and lastly, determining the number of elements in a set
8	5	Summary - Sections 5.1-5.3 Problems 1-8	Defining relations on sets, a generalization of functions, as well as logical properties of relations
9	5	Summary - Sections 5.4-5.9 Problems 9-20	Ordered relations, relations with more than two variables and applications to the sciences
10	6	Summary - Sections 6.1-6.7 Problems 1-13	A general introduction to deductive theory – setting up the framework, deciding on logical rules and laws to be used, and proving theorems, and proving theorems cannot be proven
11	6	Problems 1-13 continued	
Part II - An Application of Logic and Deductive Methodology			
12	7	Summary - Sections 7.1-7.4 Problems 1-14	The first steps in applying all of the knowledge gained in Part I – constructing deductive theory based on basic relations among real numbers using 6 axioms
13	7	Problems 1-14 continued	
14	8	Summary - Sections 8.1-8.8 Problems 1-19	The addition axioms are added to the list of axioms from the previous chapter, and new theorems are introduced; closed systems of sentences are introduced
15	8	Problems 1-19 continued	
16	9	Summary - Sections 9.1-9.6 Problems 1-12	Now that we have an axiomatic system, the next question is: How many axioms do we really need? How can we tell if an axiom is superfluous?