Mathematical Logic (REAS)
CTY Course Syllabus

Day	Time	What / Content	How / Format
Day 1	morning	1. Introductions. Class rules and expectations. 2. Pre-assessment test 3. Introduction to formal logic	Lecture notes
	afternoon	4. Truth tables and logical operators	Velleman 1.1, 1.2
	evening	Exercises	
Day 2	morning	1. Wrap up from yesterday, assessment. 2. Implication and proof in propositional calculus	Velleman 1.5
	afternoon	2. Implication and proof in propositional calculus.	
	evening	Exercises	
Day 3	morning	Natural Deduction	TA Notes
	afternoon	Natural Deduction	
	evening	Natural Deduction	
Day 4	morning	Natural Deduction	
	afternoon	Natural Deduction	
	evening	Natural Deduction	

Day	Time	What / Content	How / Format
Day 5	morning	Intro to predicate calculus	Velleman 1.3; Lecture notes
	afternoon	Translation exercises	
	evening	1. More introductory predicate calculus.	
Day 6	morning	1. Formal definitions. Well formed formulae, medium translation exercises.	
	afternoon	More difficult translation exercises	
	evening	More translations	
Day 7	morning	Set theory and predicate calculus	Velleman 1.3, 1.4
	afternoon	Set theory and predicate calculus	Velleman 1.3 / 1.4
	evening	Exercises.	
Day 8	morning	Natural Deduction for Predicate Calculus. Formal proofs	Notes from TA
	afternoon	Natural Deduction	
	evening	Exercises on Natural Deduction	
Day 9	morning	Natural Deduction for Predicate Calculus. Formal proofs	
	afternoon	Library orientation	Library

Day	Time	What / Content	How / Format
	evening	Natural deduction	
Day 10	morning	Proofs and set theory	TA Notes
	afternoon	Worksheet on computer circuits	
	evening	Work on presentations	Library
Day 11	morning	Work on presentations	Computer lab
	afternoon	Finish designing computer circuit. Set theory proofs	Worksheet
	evening	Exercises on set theory proofs	TA Notes
Day 12	morning	Axiomatics	Lecture notes
	afternoon	Students work on presentations	Computer Lab
	evening	Exercises on mathematical proofs using partial axiomatiozations of set theory, arithmetic, graph theory, binary equivalence relations, and group theory.	Developed
Day 13	morning	Axiomatics. Definition of a structure.	Lecture notes.
	afternoon	Student presentations.	
	evening	Introduction to model theory.	Lecture notes. Misc. exercises

Day	Time	What / Content	How / Format
Day 14	morning	Student presentations. Basic Model Theory	Lecture notes. Misc. exercises
	afternoon	Soundness, completeness, undecidability	Lecture notes.
	evening	Post-test, Student Evaluations	
Day 15	morning	Wrap up; party	