School:  Efi Arazi School of Computer Science B.Sc

Logic And Set Theory

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Course Requirements:
Final Exam

Language:
English

Prerequisites
Prerequisite:
56 - Discrete Mathematics

Course Description

Set theory: naive and axiomatic set theory, cardinals and set comparison, finite and infinite sets, countable sets, cardinality of the continuum, degrees of infinity. Logic: We will study in the course about two logics - propositional logic and first order logic. We will understand the general components of a logic - syntax, semantics, and a proof system - and we will elaborate on each of the components with respect to the two above logics. Among other things, we will study about: Propositional logic - logic connectives, truth tables, logical consequence and equivalence, tautologies and contradictions, normal forms. First-order logic - quantifiers, predicates, functions, structures and models, logical consequence and equivalence, normal forms. As a part of first order logic, we will see examples of algebraic structures, and in particular, we will study basic concepts in group theory.

Course Goals

The course should provide the students with basic understanding of countable and uncountable infinite sets, propositional logic, and first-order logic, to be used in advanced courses in mathematics and computer science.

Grading

80% Exam
20% Min{Exercises, Exam+20}

For passing the course, one should both pass the exam (grade 60 or more) and have a final passing grade (60 or more).

The Exercises’ grade will be the average of the best (n-1) homework assignments, where n is the total number assigned. However, you will not get credit for more than 20 points higher than your exam score for this part of the grade.
Homework appeals: Each assignment automatically receives 3 extra points; any appeal on a homework grade must be for 6+ points, and will result in the loss of the 3 points (on an assignment-by-assignment basis).

**Reading List**

There is no textbook in the course.