



# Course program and reading list

Semester 2 Year 2022

**School:** Efi Arazi School of Computer Science B.Sc

## Logic And Set Theory

### Lecturer:

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Course No.:	Course Type :	Weekly Hours :	Credit:
69	Lecture	5	5

Course Requirements :	Group Code :	Language:
Final Exam	222006903	English

### Prerequisites

#### Prerequisite:

56 - Discrete Mathematics

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## 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.

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## 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.

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## Grading

80% Exam  
20%  $\text{Min}\{\text{Exercises}, \text{Exam}+20\}$

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).

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## Reading List

There is no textbook in the course.