



Department of Computer Science

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CSE371

Course	CSE371
Title	Logic
Credits	3
Course Coordinator	Seung Soo Park
Description	A survey of the logical foundations of mathematics: development of propositional calculus and quantification theory, the notions of a proof and of a model, the completeness theorem, Gödel's incompleteness theorem. This course is offered as both CSE 371 and MAT 371.
Prerequisite	CSE 150 or CSE 215 or MAT 200 or MAT 250
Course Outcomes	<ul style="list-style-type: none"> An understanding of classical propositional and predicate logic, including a full development of syntax, semantics, and proof techniques An understanding of semantic and syntactic concepts, e.g., truth versus proof, by exploring the soundness and completeness of calculi for these logics An ability to apply abstract reasoning skills through experience with formal proofs A working knowledge of non-classical logics and their use in Computer Science
Textbook	<ul style="list-style-type: none"> Anita Wasilewska, Logic for Computer Science, Chapters 1- 15, Distributed to Students. A Friendly Introduction to Mathematical Logic, Christopher Leary, Prentice Hall 2000
Major Topics Covered in Course	<ul style="list-style-type: none"> Syntax and Semantics for Classical and various non-classical propositional logics. Two proofs of Completeness Theorem for classical propositional Logic. Automated Theorem proving systems for classical, intuitionistic and modal S4, S5 logics. Constructive Completeness Theorem proofs. First Order Classical Logic; syntax and semantics. Proof of Completeness Theorem. Formal Theories based on first order logic; Peano Arithmetic. Discussion of Godel Incompleteness and Inconsistency results.
Laboratory Projects	Not applicable since it is a theory course.
Course Webpage	CSE371

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