Propositional logic: syntax (connectives, well-formed formulas)

CS connections: translations from English to propositional logic

Propositional logic: semantics (truth-value assignments)

Proving arguments valid or invalid in propositional logic

Logic laws, normal forms, adequate set of connectives

CS applications: logic gates, circuit design, circuit minimization, code simplification

CS connections: Formal deduction

Soundness and completeness of natural deduction

CS applications: Automated theorem proving in propositional logic: Resolution, Davis-Putnam Procedure

CS + biology applications: Logic and DNA Computing
CS connections: translations from English to predicate logic
Predicate logic: syntax (quantifiers, well-formed formulas)
Predicate logic: semantics (interpretations)
Midterm
Proving argument validity or invalidity in predicate logic
CS connection: Formal deduction for predicate logic
CS applications: Automated theorem proving - Resolution for predicate logic
CS connections: Turing Machines and Undecidability
Peano arithmetic, Godel’s Incompleteness Theorem
CS connections: (Formal) Program verification