CS500: Logic in Computer Science
Fall 2021

Time and place: Wednesday 14:40-16:30 (FENS G015), Thursday 10:40-11:30 (FENS L065)

Instructor: Esra Erdem (esra.erdem @ sabanciuniv.edu)

Instructor's office hour: By appointment (FENS G053)

Course description.   Logic plays a fundamental role in various areas of computer science, such as computer architecture (circuit design, hardware verification), software engineering (specification of programs, software verification), programming languages (semantics, type theory, logic programming), databases (relational algebra, query languages), artificial intelligence (knowledge representation, automated reasoning, cognitive robotics), theory of computation (complexity, computability, expressiveness), etc. This course provides an elementary but mathematically solid introduction to logic as well as an understanding of some of its applications in computer science. Mathematical logic is studied from a computer science perspective, covering the syntax, semantics, decision procedures, formal systems, etc.

Course objective.   To prepare students for using logic as a formal tool in computer science.

Textbook.   There is no textbook; the necessary materials (e.g., lecture notes, homework problems) will be handed out in class or posted at SUCourse+.

Class participation.   Students are expected to volunteer to present their own solutions to problems listed in the lecture notes, and to participate in discussions about the solutions presented by others.

Homework.   There will be five to seven assignments.

Exams.   There will be two exams. Students will be allowed to use the lecture notes and their own notes, but no books.

Grading.   Grades will be determined by class participation and assignments (40%), and the exams (60%).