

CS 135 Discrete Structures Syllabus

The syllabus below describes a recent offering of the course, but it may not be completely up to date. For current details about this course, please contact the course coordinator. Course coordinators are listed on the course listing for undergraduate courses and graduate courses.

Text Books

Required

Kenneth Rosen, *Discrete Mathematics and Its Applications*, 7th ed., 2011

Daniel P. Friedman and Matthias Felleisen, *The Little Schemer*, 4th ed., MIT Press, 1995, ISBN 0-262-56099-2

Week-by-Week Schedule

Week	Topics Covered	Reading	Assignments
1	Course intro; intro to logic.	Rosen 1.1-1.3	Lab: intro to Scheme; Homework exercises
2	Predicate logic	Rosen 1.4-1.6; Little Schemer 1, 2	Lab: boolean functions in Scheme; Homework exercises
3	Proofs; set theory.	Rosen 1.7-1.8	Lab: lists in Scheme; Homework exercises
4	Functions.	Rosen 2.1-2.3	Lab: predicates on lists; Homework exercises
5	Sequences; induction	Rosen 2.4, 5.1	Lab: relations as lists in Scheme; Homework exercises
6	Induction and recursion	Rosen 5.2	Lab: recursion on lists; Homework exercises
7	Structural induction	Rosen 5.3, 3.1	Lab: recursive construction of lists; Homework exercises
8	Algorithmics: tail recursion, halting problem	Little Schemer 5	Lab: tail recursion; Homework exercises
9	Relations	Rosen 9.1-9.3	Relation operations on list representation; Homework exercises
10	Transitive closure, equivalence	Rosen 9.4-9.5	Lab: role-based access control; Homework exercises
11	Integers, division	Rosen 4.1-4.3	Lab: play with modulo and primes; Homework exercise
12	Number theory	Rosen 4.4-4.5	Lab: number theoretic algorithms; Homework exercises
13	Number theory and cryptography	Rosen 4.6	Lab: various topics; Homework exercises
14	Intro to graph theory	Rosen 10.1-10.2	Lab: various topics; Homework exercises