

Final Exam Topics

The Final Exam will take place Friday, December 11, 7:30am – 10am in the classroom. The exam is comprehensive and will cover all topics covered in class. Below is a list of chapters of the textbook that we covered in class, note however that often we did not cover the whole chapter or sometimes we covered slightly different material. You only have to know the material that was covered in class and in the homeworks.

- Chapter 1: 1.1, 1.2, 1.3, 1.4, 1.6, 1.7
Propositional logic and equivalences, predicates and (nested) quantifiers, proof methods and strategy (see the handout on different types of proofs)
- Chapter 2: 2.1, 2.2, 2.3, 2.4
Sets and set operations, functions, sequences and summations
- Chapter 3: 3.1, 3.2, 3.3
Algorithms and complexity: O, Ω, Θ
- Chapter 4: 4.1, 4.2, 4.3, 4.4, 4.5
Induction (weak and strong), program correctness, recursive definitions and algorithms, structural induction
- Chapter 7: 7.1, 7.2, 7.3
Divide-and-conquer algorithms, runtime recurrences, solving linear recurrences (know how to apply the theorem), master theorem (see the handout, not the version in the book; know how to apply this theorem)
- Chapter 8: 8.1, 8.2, 8.5
Relations, equivalence relations
- Chapter 9: 9.1, 9.2, 9.3
Graphs and representation of graphs (adjacency matrix and lists)
- Chapter 10: 10.1
Trees
- Chapter 12: 12.1, 12.3
Languages and grammars, finite-state machines

Big-Oh induction will not be covered on the final. The material of chapter 12 is not mandatory material for the final, but it will be part of an extra credit question on the final.

You are allowed to bring one and a half sheets of letter paper (one-sided) as cheat sheets (this way you can reuse your cheat sheets from the previous two tests if you like). The book has an excellent list of exercises at the end of every chapter, and all the odd numbered exercises are solved. This is excellent material to study for the test.