COMP26120 Examination Revision Guidance

Here is guidance on what parts of the course textbook (Algorithm Design, Goodrich and Tamassia, Wiley, 2002 edition) are relevant to your exam revision for the **summer examination**. **The material of both semesters is examinable**, as is the laboratory, tutorial and lectured material as well as topics covered in more detail in the course textbook.

This list covers the topics of both semesters. For the **January exam** you need cover only the topics from the first semester.

- You will need to be able to compute and compare complexity measures for algorithms, using the 'Big O' notation, as described in Chapter 1.
- You are expected to understand amortization and calculate amortized performance as described in Section 1.5
- Chapter 2 covers the basic material on stacks, queues, trees and hashing. This is examinable.
- Chapter 3: Sections 3.1, 3.2 only.
- Sorting: You will need to know about a range of sorting algorithms, their performance and applicability. These are mainly in Chapter 4 of the book, but some are elsewhere.
- Chapter 5 is a survey of some fundamental algorithmic techniques. All three techniques covered here are relevant.
- Graphs and graph algorithms: All of Chapter 6 is relevant, particularly adjacency matrix and adjacency list representations, and BFS and DFS traversal. In Chapter 7, we cover Dijkstra's algorithm in detail (7.1.1) and Floyd's algorithm (7.2.1).
- You will also need to know the material on the laboratory exercises in Semester 2, in particular that on Graph navigation and on Knapsack problems.

  The relevant parts of the book for Knapsack problems are Sections 5.1.1 (fractional case), 5.3.3 (dynamic programming) and 13.5.2 (branch and bound). You should make sure you understand both the Branch-and-bound and the Dynamic programming solutions, as in the laboratory exercise.