

COMP26120 Examination Revision Guidance

Here is guidance on what parts of the course textbook (Algorithm Design, Goodrich and Tamassia, Wiley, current 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, and other notations, as described in Chapter 1.
- You will need to be familiar with the lectured material on cryptosystems and the methods using modular arithmetic (in Chapter 24).
- You will also need to know the lectured material on matrices, determinants and permanents.
- Chapter 2, 3, 4 and 5 covers material on stacks, queues, trees and hashing. The lectured part of this is examinable.
- Sorting: You will need to know about a range of sorting algorithms, their performance and applicability. These are mainly in Part II of the book.
- Part III is a survey of some fundamental algorithmic techniques. All three techniques covered here are relevant, as well as the material on Knapsack problems.
- Graphs and graph algorithms: These are covered in Chapter 13 and Part IV of the book. Only the lectured material and that in laboratory exercises is examinable.
- Computational complexity is covered in Part V of the course textbook. A brief introduction is included in this course - only the course material is examinable.
- 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.

Material in the book covers various approaches to Knapsack problems, including the fractional case and greedy algorithms, dynamic programming solutions and branch and bound techniques. You should make sure you understand these both for the laboratory exercises and for the examinations.

You are reminded that exam papers from previous years are available online (on the Assessment pages of the CS StudentNet). These give an indication of the type and level of questions, and so are useful to practice your understanding, but be aware that the syllabus content changes from year-to-year and you should be guided by the lectures and labs on the content of the course.