

## DM69 — Lecture 1

### Lecture 1 — February 2

The lecture will be on shortest paths problems.

- Single-source shortest paths: Cormen 24.1–24.2.  
It is a good idea to recapitulate Dijkstra’s algorithm and the pages 580–587 before the lecture.
- All-pairs shortest paths: Cormen 25.1–25.2.

### Problems for February 4

1. Problem 24.2-4 in Cormen.
2. Problem 24-1 in Cormen.
3. Problems 25.1-4, 25.1-7, 25.1-9 in Cormen.
4. Problems 25.2-5, 25.2-8 in Cormen.
5. Read Section 25.3 in Cormen and explain how and why Johnson’s algorithm works.
6. Problems 25.3-4, 25.3-6 in Cormen.

### Practical Information

#### Literature

Cormen, Leiserson, Rivest, Stein: *Introduction to Algorithms*.

2. udgave, MIT Press, 2001.

On the weekly notes, this book will be referred to as “Cormen”.

Besides this book we will use several sets of supplementary notes which will be handed out or made available through the homepage

**Weekly notes** The weekly notes will usually be available Friday morning. They can be found at the course homepage.

<http://www.imada.sdu.dk/~lenem/Teaching/DM69/>

**Time and place** The lectures will be given on Wednesdays 12–14 and the problem sessions will be on Fridays 8–10, both in the seminar room.

**Exam** There will be an oral exam on June 17.

**Exercises** Note that all exercises are part of the course curriculum (pensum). As the exam is oral I will pose several proof exercises during the course.