Institut for Matematik og Datalogi
Syddansk Universitet

January 24, 2008
JFB

DM508 – Algorithms and Complexity – F08
Lecture 1

Textbook and notes

Introduction to Algorithms, 2nd edition, by T. Cormen, C. Leiserson, R. Rivest, and C. Stein, MIT Press, 2001.

Extra notes (available in the bookstore): *Noter til DM508, Forårssemestret 2008*. From the following sources:

- *Computer Algorithms: Introduction to Design and Analysis*, second edition, by S. Baase, Addison-Wesley, 1987.
- *Randomized Algorithms*, by Motwani and Raghavan, Cambridge University Press, 2000.
- *Combinatorial Optimization: Algorithms and Complexity*, by C.H. Papadimitriou and K. Steiglitz, Prentice-Hall, 1982.

Format

Lectures will be in English. Please read the appropriate sections in the textbook or notes before coming to class and bring your textbook with you. There will both be assignments which you are required to turn in and other assignments which you should be prepared to discuss in the discussion sections (øvelserne), usually shortly after the relevant lecture. The "instruktor" for the course is Niels Hvidberg Kjeldsen. We expect that the discussion section will be in Danish, unless there are some foreign exchange students in the class.

The required assignments will be graded on a Pass/Fail basis, and satisfactory completion of all 3 assignments is required for a Pass. The assignments must all be turned in on time. (Note that if you send them to me by e-mail, you are responsible for them actually getting to me on time. Sending from IMADA's computers will help ensure that your e-mail is not delayed at an intermediate computer for many hours.) You may work in groups of 2 to 3 students if you wish. These 3 assignments count as the exam in 1 ECTS of the course (and you have to have passed them in order to take the oral exam), so cheating on these assignments is viewed as cheating on an exam. You are allowed to talk about course material with your fellow students, but working together on assignments with students not in your group is cheating. Using solutions you find elsewhere, such as on the Internet, is also cheating. You may do the assignments in either English or Danish, but if you write them by hand, please do so very neatly.

The weekly notes and other information about the course are available through the World-wide Web. Use Blackboard or the URL:

http://www.imada.sdu.dk/Courses/DM508/

I have office hours 10:30–11:15 on Mondays and 9:00–9:45 on Thursdays.

There will be an oral exam at the end of March, 2007. Previous exam questions are available on DM508's homepage; an updated set of exam questions will be available later in the course. You may do your exam in Danish if you wish (in most cases it is advisable to do it in Danish).

Lecture, January 28

We will begin with an introduction to the course. Randomized Quicksort, from sections 7.3 to 7.4 in the textbook, will be presented. Randomized Quicksort is also presented in the course notes, those by Motwani and Raghavan. Counting sort from section 8.2 will also be presented.

Lecture, January 30

Lower bounds from section 2.4 of the first part of the notes will be discussed (part of this is also in section 8.1 of the textbook). We will also begin on sections 3.1 and 3.2 of those notes.

Problems to be discussed on February 1

Do problems:

(As review of Quicksort) 7.1-2. 7.1-4, 7.2-1, 7.2-2, 7.2-4, 7.2-5.

7.3-1, 7-3-2, 7.4-2, 7.4-3, 7.4-6.

8.1-1, 8.1-3 (just do the first part), 8.2-2. 8.2-4.