Course Information and Syllabus

This course is an introduction to the design and analysis of computer algorithms. A particular emphasis will be given to principles of mathematical induction and their use in designing algorithms.

Instructor: Yih-Kuen Tsay (蔡益坤), NTU IM Dept., 3366-1189, `tsay@im.ntu.edu.tw`.

Lectures: Thursday 2:20–5:20PM, Room 201, Management II.

Office Hours: Wednesday 1:30–2:30PM or by appointment, Room 1108, Management II.

Textbooks:

Introduction to Algorithms – A Creative Approach, U. Manber, Addison-Wesley, 1989.

Introduction to Algorithms, Second Edition, T.H. Cormen, C.E. Leiserson, and R.L. Rivest, MIT Press, 2001.

Syllabus/Schedule: The course will cover most of Manber's book plus supplementary material, including a few chapters of the book by Cormen *et al.*:

- Introduction—Chapter 1   (.5 week: 2/21a)
- Mathematical Induction—Chapter 2   (1.5 weeks: 2/21b,3/6)
- Analysis of Algorithms—Chapter 3   (1 week: 3/13)
- Design by Induction—Chapter 5   (2 weeks: 3/20,3/27)
- Data Structures: A Supplement—Sections 4.3.2,4.3.4,4.4,4.5   (1 week: 4/10)
- Sorting, Searching, and String Processing—Chapter 6   (2 weeks: 4/17,5/1)
- Graph Algorithms—Chapter 7   (2 weeks: 5/8,5/15)
- Selected Topics: Dynamic Programming, Mergeable Heaps, and Linear Programming—Chapters 15, 19, 20, and 29 of Cormen *et al.*   (2 weeks: 5/22,5/29)
- NP-Completeness—Chapter 11   (2 weeks: 6/5,6/12)

FTP Site: `ftp://ftp.im.ntu.edu.tw/` (directory: /home/course/Algorithms/; guest accounts may be requested).

Grading: Homework Assignments 15%, Participation 5%, Midterm (4/24) 40%, Final (6/19) 40%.

TA: Jinn-Shu Chang (張晉碩), 3366-1205, `b92705045@ntu.edu.tw`; Yu-Chieh Tu (屠敬傑), 3366-1205, `b92705010@ntu.edu.tw`. TA sessions will be scheduled prior to some of the class meetings (tentatively on 3/20, 4/17, 5/15, and 6/5), between 1:20 and 2:10PM.