

COSC413 Advanced Topics in Algorithms

Course Outline

Course supervisor: Professor T. Takaoka
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Course aims

We learn cryptography and complexity theory in this course. This course will give a clear explanation of NP-completeness theory. Then algorithms on number theory needed for the RSA cryptosystem will be given in detail. The advanced topic of random algorithms will also be discussed.

Lectures and Lecturer

Lectures are on /monday 11 a.m. - 1 p.m. in room Math/Cosc 235. for the whole term. Lecturer is the supervisor given above.

Assessment

Part	Type	Worth	Due date
Assignment 1	Materials from cryptography	30%	Single Precision August 20 Multiple Precision September 10
Assignment 2	Materials from complexity theory	30%	October 1
Exam		40%	TBA

The test is an open book one. Important documents are posted to the COSC413 in Takaoka's home page. Please read all such notices.

Recommended Reading

- Hopcroft and Ullman (recommended text), *Design and Analysis of Computer Algorithms*, Addison-Wesley,1974.
- D. E. Knuth, *The Art of Programming, Vol 2 : Seminumerical Algorithms* , Addison-Wesley, 1997

Other important documents

You should be in possession of two important Computer Science documents that are handed out together (versions of these documents are also available through our departmental web page at <http://www.cosc.canterbury.ac.nz>). One is the Computer Science “Standard Academic Rules, Regulations and Guidelines”, and includes details of how to apply for aegrotats and other forms of special consideration. The other document contains our code of practice for computer use, and emergency procedures.

You should read both documents carefully, as you will be asked to sign a form acknowledging that you agree to abide by the rules specified in the two documents.