CSC363 - Computational Complexity and Computability
Winter 2007

Instructor: Matei David, email: `matei@cs.toronto.edu`, office: SF4302-F, phone: 416-946-3924

Lectures: Tuesdays and Thursdays, 10-11am, in RW110

Tutorials: Fridays, 10-11am,

your last name	room	TA name	email
A - M	SS1080	Costis Georgiou	`cgeorg@cs`
N - Z	SS2111	Periklis Papakonstantinou	`papakons@cs`

Office Hours: Monday, 3-4pm in BA3234

Website: `http://www.cs.toronto.edu/∼matei/363w07/`. Refer to this site periodically.

Textbook:

M. Sipser. *Introduction to the Theory of Computation.* Thomson Course Technology, 2005. This is the main book I will be following. We will be interested in chapters 3, 4, 5, 7 and possibly 8.

Reference Books:

M. Garey and D. Johnson. *Computers and Intractability: A Guide to the Theory of NP-Completeness.* (1979) This book is an excellent reference, and contains a large compendium of NP-complete problems in the back.

Cormen, Leiserson, Rivest and Stein. *Introduction to algorithms (second edition).* McGraw-Hill, 2001. This book is mainly concerned with algorithms, and some other courses may be based on it. For our purposes, chapters 34 and 35 are relevant.

Course Contents:

- Computability theory (6 weeks). Turning machines, Church's thesis, decidability and semi-decidability, diagonal arguments, the Halting Problem and other undecidable problems, reductions.

- Computational Complexity (7 weeks). The classes P and NP, polynomial time reducibility, NP-completeness, Cook-Levin theorem, various NP-complete problems, space-bounded computation.

Marking Scheme:

4 assignments worth 10% each, due on January 26th, February 16th, March 16th and April 9th.
1 midterm exam worth 15%, March 2nd, in tutorial.
Final exam worth 45%. To pass the course, you must achieve a grade of at least 40% on the final exam.

20% Rule:

For the midterm exam and the final exam, you will receive 20% of the marks on each question (or part of a question) where you answer "I don't know" and nothing else. This does not apply to homework assignments.

Lateness Policy:

Assignments are due at 2pm on their due date, in the CSC363 dropbox. Assignments submitted at any time between 2pm on their due date and the beginning of the next lecture will incur a 40% penalty. No assignments will be accepted after the beginning of lecture. For any kind of special accomodation, contact the instructor.

Plagiarism and other Offences:

Assignments are to be done individually. *The work you submit must be your own.*
`http://www.cs.toronto.edu/∼fpitt/documents/plagiarism.html`
`http://www.cs.toronto.edu/∼clarke/acoffences/`