Course Information

Lecturers:	Piotr Indyk Office hours: By appointment `indyk@theory.lcs.mit.edu`	NE43–373	452–3402
	Madhu Sudan Office hours: By appointment `madhu@mit.edu`	NE43–307	3–9680
Teaching Assistants:	Rachel Greenstadt Office hours: Web 4-6 P.M. `greenie@mit.edu`	NE43-410	3-0710
	Matt Levine Office hours: Mon 4-6 P.M. `mslevine@theory.lcs.mit.edu`	NE43-372	3-3796
	Chris Peikert Office hours: Wed 4-6 P.M. `cpeikert@mit.edu`	NE43-410	3-0710
	Nati Srebro Office hours: Wed 5:30-7:30 P.M. `nati@mit.edu`	NE43-311	3-2345
	Shane Swenson Office hours: Mon 12-2 P.M. `sswenson@theory.lcs.mit.edu`	NE43-410	3-0710
	Nitin Thaper Office hours: Mon 2-4 P.M. `nitin@theory.lcs.mit.edu`	NE43-338	3-7583
Course Secretary:	Joanne Talbot `joanne@theory.lcs.mit.edu`	NE43–366	3–6054

1 Requirements

This course is the header for the EECS Engineering Concentration of Theory of Computation. The official prerequisites for the course are 6.001 (*Structure and Interpretation of Computer Programs*) and 6.042J/18.062J (*Math for Computer Science*).

2 Lectures

Lectures will be held in Room 54-100 on Tuesdays and Thursdays from 2:30 P.M. to 4:00 P.M. You are responsible for material in lectures, including oral comments made by the lecturer.

Historically, students with active attendance have scored at least one letter grade higher on exams than their less frequently attending classmates.

3 Recitations

Each student should attend a one-hour recitation session each Friday, to be taught by the teaching assistants. As with lectures, you are responsible for recitation material, and attendance has been well correlated in the past with exam performance.

Recitations are planned as follows:

A	Friday 10am	2-132
B	Friday 11am	2-132
C	Friday 12pm	2-139
D	Friday 11am	2-142
E	Friday 12pm	2-136
F	Friday 1pm	2-136
G	Friday 12pm	8-306
H	Friday 1pm	8-306
I	Friday 2pm	8-306

Please fill out the information sheet to indicate your preferences. Recitations start *this Friday*; you will be notified by email of your recitation assignment by Thursday evening.

4 Handouts

Handouts will generally be made available at the beginning of lecture. In order to keep your handouts organized, we suggest that you obtain a loose-leaf notebook for use with the course. All handouts will be distributed on standard three-hole punched paper.

If you fail to obtain a handout in lecture, you can get a copy from the class homepage, `http://theory.lcs.mit.edu/classes/6.046/spring01/`, or from the course secretary.

5 Textbook

The primary written reference for the course this year is *Introduction to Algorithms*, by Cormen, Leiserson, and Rivest (CLR). You can obtain it from Quantum Books in Kendall Square, from various other local bookstores, or on-line.

6 Grading

Your final grade in the course will be based on your score on problem sets (PS), one in-class quiz (Q1), one take-home quiz (Q2), and a final (F). The 6 problem sets will have 24 questions worth in total about 400 points; Q1 will be worth about 150 points; Q2 about 200 points; and the final about 250 points. Thus your final grade will be computed as

$$\mathrm{PS} + \mathrm{Q1} + \mathrm{Q2} + \mathrm{F}$$

out of a possible thousand points. Note the high weight given to problem sets; a consequence of this is that if you do not make a sincere attempt to solve every problem, then you should not expect to do well in the course.

The course staff reserves the right to change the grading policy.

7 Problem sets

Problem sets will be roughly assigned on a weekly basis. Typically, problem sets will be handed out in lecture on Tuesdays and due **by the end of lecture** the following Tuesday. The course calendar shows the schedule of assignments and due dates that we expect, but the actual due date will always be printed on the problem set itself.

Late homeworks will generally not be accepted. If there are extenuating circumstances, you must make *prior* arrangements with your TA. A letter from the Dean's Office will be required if prior arrangements have not been made.

Each problem should be done **on a separate sheet (or sheets) of standard letter-sized paper**, since problems will be graded by separate graders. Mark the top of each sheet with: your name, 6.046 (or 18.410 if you prefer), the problem set number, the problem number, your recitation section, your TA, and the date. You may wish to use three-hole punched paper.

You should be as clear and precise as possible in your write-up of solutions. Understandability of your answer is as desirable as correctness. Moreover, how well you *communicate* your solutions to the course staff is important as well. For example, a simple, direct analysis is worth more points than a convoluted one, both because it is simpler and because it is easier to read and understand. Sloppy answers will receive fewer points, even if they are correct, so make sure that your handwriting is legible. It is a good idea to copy over your solutions to hand in, which will make your work neater and give you a chance to do sanity checks and correct bugs.

Problem sets will be returned in recitation.

8 Describing algorithms

You will often be called upon to "give an algorithm" to solve a certain problem. You should generally provide four things when you describe an algorithm.

1. An English description of the algorithm.
2. An example, a diagram, or pseudocode to show precisely how the algorithm works.
3. A proof (or indication) of the correctness of the algorithm.
4. An analysis of the running time of the algorithm.

9 Collaboration

You are encouraged to collaborate on the solution of the homeworks. Many students who form study groups do better in the course than if they work alone. If you do work in a study group, **you should work independently for at least 30–45 minutes** on each problem before discussing it in the group.

If you do collaborate, however, you *must* name your collaborators. Whether or not you collaborate, **you must write up solutions on your own**. If you obtain a solution through research (e.g., through library work), acknowledge your source, but – again – write up the solution on your own.

Finally, **you may not use the solutions to problem sets from previous terms**. Plagiarism and other anti-intellectual behavior will be dealt with severely.