Course Information

1 Staff

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2 Prerequisites

A strong understanding of programming and a solid background in discrete mathematics, including probability, are necessary prerequisites to this course. If you do not think you have sufficient background, please talk to Prof. Lee.

3 Distance Education

This course is taught using a combination of taped lectures, live videoconferencing and live recitations. The lectures, given by Professors Erik Demaine and Charles Leiserson, are taped from the equivalent MIT course 6.046J/18.410J.

4 Lectures

Students are expected to view videos of the lectures following a strict schedule. You are responsible for material presented in lectures, including oral comments made by the lecturer.
5 Recitations

Students must attend a one-hour recitation session each week with Prof. Hsu and Prof. Lee. You are responsible for material presented in recitation. Attendance in recitation has been well correlated in the past with exam performance. Recitations also give you a more intimate opportunity to ask questions and interact with the course staff.

6 Handouts

Most handouts will be made available on the course web page in formats suitable for printing. Students should download and print out the handouts from the course web page. You will receive an email reminder when the handouts are available online. The email message will say where and when the few handouts that are not available from the web page can be obtained.

7 Textbook

The primary written reference for the course is the second edition of the textbook *Introduction to Algorithms* by Cormen, Leiserson, Rivest, and Stein. The second edition is a substantial revision of the first, making the first edition unsuitable as a substitute.

The textbook is available from the NUS Co-op bookshop at LT27.

8 Course website

Please bookmark the course website:

http://www.comp.nus.edu.sg/~sma5503

It provides links to all the distance-learning materials, including video recordings of the lectures. Available here are also links to electronic copies of handouts, corrections made to the course materials, and special announcements. You should visit this site regularly to be aware of any changes in the course schedule, updates to your instructors’ office hours, etc.

9 Extra help

Professors and Teaching Assistant will post his or her weekly office hours on the course website.

10 Problem sets

Eight problem sets will be assigned during the semester. The course calendar, Handout 2, shows the tentative schedule of assignments and due dates, but the actual due date will always be on the problem set itself.
• Late homeworks will generally not be accepted. If there are extenuating circumstances, you should make \textit{prior} arrangements with Prof. Hsu and Prof. Lee.

• Each problem should be written up on a separate sheet (or sheets) of paper, since problems may be graded by separate graders. Mark the top of each sheet with the following:

  – your name,
  – the problem number,
  – the people you worked with on the problem (see Section 13), or \textquotedblright Collaborators: none\textquotedblright if you solved the problem completely alone.

• You should be as clear and precise as possible in your write-up of solutions. Understandability of your answer is as desirable as correctness, because communication of technical material is an important skill.

  A simple, direct analysis is worth more points than a convoluted one, both because it is simpler and less prone to error 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.

• The problem sets includes exercises that should be solved but not handed in. These questions are intended to help you master the course material and will be useful in solving the assigned problems. Material covered in exercises will be tested on exams.

11 Describing algorithms

You will often be called upon to “give an algorithm” to solve a certain problem. Your write-up should take the form of a short essay. A topic paragraph should summarize the problem you are solving and what your results are. The body of your essay should provide the following:

1. A description of the algorithm in English and, if helpful, pseudocode.

2. At least one worked example or diagram to show more precisely how your algorithm works.

3. A proof (or indication) of the correctness of the algorithm.

4. An analysis of the running time of the algorithm.

Remember, your goal is to communicate. Graders will be instructed to take off points for convoluted and obtuse descriptions.
12 Grading policy

The final grade will be primarily based on problem sets \((P)\), one in-class quiz \((Q_1)\), one take-home quiz \((Q_2)\), and a final \((F)\). The problem sets will together be worth about 20%, Quiz 1 about 15%, Quiz 2 about 25%, and the final exam about 40%. In addition, the teaching staff will give up to 10% bonus marks for insightful discussion in class, problem sets and exams.

Although the problem sets account for only 20% in your final grade, you must do them. The following table shows the impact of failing to do problems:

<table>
<thead>
<tr>
<th>Problems skipped</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>One-hundredth of a letter grade</td>
</tr>
<tr>
<td>2</td>
<td>One-tenth of a letter grade</td>
</tr>
<tr>
<td>3</td>
<td>One-fifth of a letter grade</td>
</tr>
<tr>
<td>4</td>
<td>One-fourth of a letter grade</td>
</tr>
<tr>
<td>5</td>
<td>One-third of a letter grade</td>
</tr>
<tr>
<td>6</td>
<td>One-half of a letter grade</td>
</tr>
<tr>
<td>7</td>
<td>One letter grade</td>
</tr>
<tr>
<td>8</td>
<td>Two letter grades</td>
</tr>
<tr>
<td>9 or more</td>
<td>Fail</td>
</tr>
</tbody>
</table>

Please observe that this table is for problems skipped, not problem sets.

The specifics of this grading policy are subject to change if the need arises.

13 Collaboration policy

The goal of homeworks is to give you practice in mastering the course material. Consequently, you are encouraged to collaborate on problem sets. In fact, students who form study groups generally do better on exams than do students who work alone. If you do work in a study group, however, you owe it to yourself and your group to be prepared for your study group meeting. Specifically, you should spend at least 30–45 minutes trying to solve each problem beforehand. If your group is unable to solve a problem, talk to other groups or ask your recitation instructor.

You must write up each problem solution by yourself without assistance, however, even if you collaborate with others to solve the problem. You are asked on problem sets to identify your collaborators. If you did not work with anyone, you should write “Collaborators: none.” If you obtain a solution through research (e.g., on the web), acknowledge your source, but write up the solution in your own words.

No collaboration whatsoever is permitted on exams.

Plagiarism and other antiintellectual behavior cannot be tolerated in any academic environment that prides itself on individual accomplishment. If you have any questions about the collaboration policy, or if you feel that you may have violated the policy, please talk to one of the course staff.
Although the course staff is obligated to deal with cheating appropriately, we are more understand-
ing and lenient if we find out from the transgressor himself or herself rather than from a third party.

This course has great material, so HAVE FUN!