Course Information

This handout describes basic course information and policies. Most of the sections will be useful throughout the course. The main items to pay attention to NOW are:

1. Please sign up for the course and submit your recitation preferences by going to [http://matulef.scripts.mit.edu/6.046/signup.php](http://matulef.scripts.mit.edu/6.046/signup.php) by 2pm today! Doing so will get you on the class mailing list, if you are not already on it.

2. Please note the dates of the quizzes and make sure not to plan trips around these dates. (Calendar is available from the class website on stellar.)

3. Please note the collaboration policy for homeworks.

4. Please note the grading policy, and in particular, the penalty for missed problems.

1 Staff

Lecturers: Srini Devadas 32-G844 +1-617-253-0454
devadas@mit.edu

Piotr Indyk 32-G642 +1-617-452-3402
indyk@mit.edu

Teaching Assistants: Kevin Matulef 32-G696 matulef@mit.edu
Huy Nguyen 32-G578 huy2n@mit.edu
Matthew Webber 24-323 wmatthew@mit.edu

Email: 6046-staff@mit.edu

2 Registration (to be done by 2:00 PM on Thursday)

You must sign up for recitations by 2:00 pm today, Thursday, Sep 4 by going to [http://matulef.scripts.mit.edu/6.046/signup.php](http://matulef.scripts.mit.edu/6.046/signup.php). We will email your recitation assignment to you before 8.00 p.m. If you do not receive this information from us by that time, please send an email to matulef@mit.edu.
3 Prerequisites

A strong understanding of programming and a solid background in discrete mathematics, including probability, are necessary prerequisites to this course.

This course is the header course for the MIT/EECS Engineering Concentration of Theory of Computation. You are expected to have taken 6.006 Introduction to Algorithms and 6.042J/18.062J Mathematics for Computer Science, and received a grade of C or higher in both classes. If you do not meet these requirements, you must talk to a TA before registering for the course.

4 Lectures & Recitations

Lectures will be held in Room 35-225 from 11:00 A.M. to 12:30 P.M. ET on Tuesdays and Thursdays. You are responsible for material presented in lectures, including oral comments made by the lecturer.

Students must also attend a one-hour recitation session each week. The course staff will schedule recitations. 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. Your recitation instructor will assign your final grade.

Recitations will be taught by the teaching assistants on Fridays. Please fill out the sign-up sheet on the course web page to indicate your preferences for recitation sections. Recitation assignments made by the scheduling office are inoperative.

5 Problem sets

Six problem sets will be assigned during the semester. The course calendar, available from the course webpage, shows the tentative schedule of assignments, and due dates. The actual due date will always be on the problem set itself.

- Late homework will generally not be accepted. If there are extenuating circumstances, you should make prior arrangements with your recitation instructor.

  An excuse from the Dean’s Office will be required if prior arrangements have not been made.

- Each problem should be written up on a separate sheet (or sheets) of paper, since problems may be graded by separate graders. You may handwrite or type your answers. Mark the top of each sheet with the following: (1) your name, (2) the name of your recitation instructor, (3) the problem number, (4) the people you worked with on the problem (see Section 8), or “Collaborators: none” if you solved the problem completely alone.
6 Guide to writing up homework

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.

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.

7 Grading policy

The final grade will be primarily based on problem sets ($P$), one 2 hour quiz ($Q_1$), one take-home quiz ($Q_2$), and a final ($F$) during final exam week. Quiz 1 will be on October 8, 7.30 P.M. to 9.30 P.M. in Rm. 34-101. Quiz 2 will be given out Tuesday, November 4 after lecture and due Friday November 7 at 5 P.M.. The problem sets will together be worth about 80 points, the first quiz about 100 points, the second take-home quiz about 100 points, and the final exam about 150 points.

Although the problem sets account for only 80 points 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.

## 8 Collaboration policy

The goal of homework 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. It is a violation of this policy to submit a problem solution that you cannot orally explain to a member of the course staff.

No collaboration whatsoever is permitted on exams. The course has a take-home exam for the second quiz which you must do entirely on your own, even though you will be permitted several days in which to do the exam. More details about the collaboration policy for the take-home exam will be forthcoming in the lecture on Tuesday, November 4. Please note that this lecture constitutes part of the exam, and attendance is mandatory.

Plagiarism and other anti-intellectual 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 understanding and lenient if we find out from the transgressor himself or herself rather than from a third party.
9 Textbook

The primary written reference for the course is the second edition of the textbook Introduction to Algorithms by Cormen, Leiserson, Rivest, and Stein. In previous semesters the course has used the first edition of this text. The second edition is a substantial revision of the first, making the first edition unsuitable as a substitute.

The textbook can be obtained from the MIT Coop, the MIT Press Bookstore (a 20% discount coupon can be found in the MIT Student Telephone Directory), and at various other local and online bookstores. Electronic versions of the book are available from Google Book (limited access but searchable),

http://books.google.com/books?id=NLngYyWF1_YC&printsec=frontcover
and from
http://libraries.mit.edu/get/books24x7
(you might need to be on MIT campus to access the latter).

We also recommend Kleinberg and Tardos, Algorithm Design for additional reading.

10 Course website

The course website contains 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. You will be informed via the web page and/or email where and when the few handouts that are not available from the web page can be obtained.

11 Extra help

Extra help may be obtained from the following two resources. The MIT Department of Electrical Engineering and Computer Science provides one-on-one peer assistance in many basic undergraduate Course VI classes. During the first nine weeks of the term, you may request a tutor who will meet with you for a few hours a week to aid in your understanding of course material. You and your tutor arrange the hours that you meet, for your mutual convenience. This is a free service. More information is available on the HKN web page:


Tutoring is also available from the Tutorial Services Room (TSR) sponsored by the Office of Minority Education. The tutors are undergraduate and graduate students, and all tutoring sessions take place in the TSR (Room 12-124) or the nearby classrooms. For further information, go to


This course has great material, so HAVE FUN!