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 the following:

1. By 6:00 P.M. today, you must make sure that you are registered on the Stellar website.

2. By 6:00 P.M. today, you must indicate your recitation preferences by filling out the Doodle poll.

3. Register for the Piazza Q&A website after receiving an invitation by 8:00 P.M. today.

4. Note the dates of the quizzes, especially the take-home quiz, and plan to keep those dates free. Notice also that attendance in lecture is mandatory on Thursday, April 21, the day the take-home goes out.

5. Read and understand the collaboration policy for homeworks.

6. Read the grading policy, and in particular, notice the substantial penalties for skipping homework problems.

7. Observe the prerequisite policy: if you have not satisfied the course prerequisites, you must obtain approval from the course instructors, or you may find yourself dropped from 6.046 this term.
1 Staff

Lecturers
- Charles E. Leiserson 32-G768 cel@mit.edu
- Dana Moshkovitz 32-G606 dmoshkov@mit.edu

TA’s
- Prasant Gopal 32-G670 pga@mit.edu
- Will Hasenplaugh 32-G770 whasenpl@mit.edu
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Web

Email
6046-staff@csail.mit.edu

Q&A
http://www.piazzza.com/mit

2 Registration (to be done by 6 P.M. today)

Please make sure you are registered for the course on Stellar by 6 P.M. today, Tuesday, February 1. We will send out an email shortly after the deadline to confirm your registration. If you do not receive a confirmation message by 8 P.M., please email the course staff.

3 Prerequisite

This course is the header course for the MIT EECS Engineering Concentration of Theory of Computation. You are expected to have taken and received a grade of C or better in 6.006 Introduction to Algorithms. If you do not meet this requirement, you must talk to an instructor before you will be allowed to take the course.

4 Course websites

The Stellar website for the course 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, exams, etc. You will be informed via the web page, email, or Piazzza where and when the few handouts that are not available from the web page can be obtained. In addition, you should use the Stellar website to submit problem sets and to check on your grades.

The Piazzza website provides a wiki-like service for organizing questions and answers regarding course content. The course staff will generally use Piazzza for general communications with students, rather than email. Piazzza allows students to submit questions to the course staff, which
other students can see. Questions may be submitted with the author identified, but anonymous questions may also be submitted. The course staff can respond to questions and provide answers, but students can also respond and provide answers. You should receive an email by 8:00 P.M. today, Tuesday, February 1, inviting you to register on the 6.046 Piazza website.

All questions about course content and administration should be posed via Piazza. The staff email should only be used for personal matters. If you are shy, you can post your question to Piazza anonymously, but since your Piazza comments count toward your participation grade, you would be well advised to keep anonymous comments to a minimum.

5 Lectures

Lectures will be held in room 35-225 from 9:30 A.M. to 11:00 A.M. on Tuesdays and Thursdays. You are responsible for material presented in lectures, including oral comments made by the lecturers.

6 Recitation sections

Students must attend a one-hour recitation session each week taught by one of the teaching assistants. Recitations will be held at 10 A.M., 11 A.M., 12 P.M., 1 P.M., 2 P.M., and 3 P.M. on Fridays. You are responsible for material presented in recitation, including oral comments made by the recitation instructor. Recitations give you a more intimate opportunity to ask questions and interact with the course staff. Attendance in recitation has been well correlated in the past with exam performance. Your recitation instructor will assign your final grade.

You must sign up for recitation sections online by 6:00 P.M. today, Tuesday, February 1. Any recitation assignments made by the MIT Scheduling Office are inoperative. Go to http://www.doodle.com/kxka76dw53tz5py5 to enter your recitation preferences. Please make sure that you indicate at least two times you can attend. You may be dropped from the class if you indicate availability for only one section time and we are unable to place you in that section. If you cannot indicate at least two times, please leave a comment in the poll justifying why you have no flexibility.

We will announce recitation assignments by class on Thursday. If you do not receive an assignment by that time, please send an email to the course staff.

7 Problem sets

Eight 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. Homework must generally be turned in by 11:55 A.M. (just before noon) on the due date.
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. In all cases, late homework must be submitted online on the course website.

Each problem must be written up separately and submitted on the online to Stellar website as a Portable Document Format (PDF) file. We prefer that you format your problem solutions in \texttt{\LaTeX}, but any method of generating the PDF is acceptable, including scanning a handwritten document, as long as your solution is clearly legible. A set of \texttt{\LaTeX} macros for the class will be made available on Stellar, and we recommend that you acquire a \texttt{\LaTeX} manual or find a good online source for \texttt{\LaTeX} documentation.

The top of each problem should include the following:

- your name,
- the question number,
- the names of any people you worked with on the problem (see Section 10), or “Collaborators: none” if you solved the problem completely alone.

The provided \texttt{\LaTeX} macros will provide such a header for you automatically. See the tutorial included with the macros for details.

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

8 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. If you are writing your problem solutions by hand, 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. If typesetting, reviewing the problem set while typing it in offers the same effect.

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. An argument that your algorithm is correct.
4. An analysis of the running time of your algorithm.

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

9 Grading policy

Your final grade is based on eight problem sets, one in-class quiz, one take-home quiz, a final exam during finals week, and participation during the weekly recitation sections, during lecture, and via the Piazza Q&A website. Quiz 1 is an in-class exam on Thursday, March 10. Quiz 2 is a take-home exam given out on Thursday, April 21, and due on Monday, April 25 at 11:55 A.M. (just before noon). Please note that class attendance is mandatory on Thursday, April 21. If you do not attend this class in its entirety, you will be assigned a failing grade on the take-home exam.

The grading breakdown is as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem sets</td>
<td>10%</td>
</tr>
<tr>
<td>Quiz 1</td>
<td>20%</td>
</tr>
<tr>
<td>Quiz 2</td>
<td>30%</td>
</tr>
<tr>
<td>Final exam</td>
<td>30%</td>
</tr>
<tr>
<td>Participation</td>
<td>10%</td>
</tr>
</tbody>
</table>

Although the problem sets account for only 10% of your final grade, you are required to do them. Over the eight problem sets, there will be 20 problems or so. The following table shows the nonlinear impact of failing to do homework 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-thirteenth of a letter grade</td>
</tr>
<tr>
<td>2</td>
<td>One-eighth 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-third of a letter grade</td>
</tr>
<tr>
<td>5</td>
<td>One-half of a letter grade</td>
</tr>
<tr>
<td>6</td>
<td>One letter grade</td>
</tr>
<tr>
<td>7</td>
<td>Two letter grades</td>
</tr>
<tr>
<td>8 or more</td>
<td>Fail</td>
</tr>
</tbody>
</table>

Please observe that this table is for problems skipped, not problem sets. If you having trouble doing a problem, you should talk with others in your study group or a TA. In the end, if you cannot do a problem, you should still write up what you attempted and describe how you failed. Cursory write-ups (as judged by the instructors) will be treated a skipped problems.
10 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 alone trying to solve each problem beforehand. If your group is unable to solve a problem, talk to other groups or ask a TA.

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 the 6.046 collaboration 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. In particular, 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 Thursday, April 21. Please note that this lecture constitutes part of the exam, and attendance is mandatory.

Plagiarism and other dishonest 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.

11 Textbook

The primary written reference for the course is the third edition of the textbook Introduction to Algorithms by Cormen, Leiserson, Rivest, and Stein. In recent semesters the course has used the second edition of this text. We will be using materials and exercises from the third edition, making earlier editions unsuitable as substitutes.

The textbook can be obtained from the MIT Coop, the MIT Press Bookstore, and at various other local and online bookstores.

12 Extra help

Based on the desires of the students, the teaching assistants will offer regular office hours 3–6 P.M. Monday and Tuesday in the fifth-floor lounge of the Gates building in the Stata Center. You are also welcome to do your homework in this space, which will make it easy for you to consult the TA's if something comes up.
Further help may be obtained through tutoring services. The MIT EECS department provides one-on-one peer assistance for 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 service is free! More information is available on the HKN web webpage:

https://hkn.mit.edu/tutoring/index.php

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

http://web.mit.edu/tsr/www

This course has great material, so HAVE FUN!