COURSE INFORMATION

LECTURER: Alan H. Guth, Room 6-322, 617-253-6265, guth@ctp.mit.edu.

RECITATION INSTRUCTOR: John Belcher, Room 37-695, 617-253-4285, jbelcher@mit.edu.

TEACHING ASSISTANT: Cagin Yunus, cyunus@mit.edu.

LECTURE HOURS: Mondays and Wednesdays, 11:05 a.m. – 12:25 p.m., in Room 6-120.

RECITATION CLASSES: Thursdays at 3:05 – 3:55 pm and at 4:05 – 4:55 pm, both in Room 26-322.

REQUIRED TEXTBOOK:


GRADING:

40% of the grade will be based on two quizzes during the term. The quizzes will be given during class time, tentatively on the following dates:

   Wednesday, October 4, 2017
   Wednesday, November 15, 2017

If you have a problem of any kind with either of these dates, you should email me (Alan Guth) as soon as possible.

35% of the grade will be based on the final exam, which will be a 3-hour exam given during the final exam period.

The remaining 25% of the course grade will be based on problem sets. There will be approximately 10 problem sets during the term, which means about one problem set per week, with a few exceptions due to holidays and the quizzes. The problem sets will mostly be due on Fridays at 5:00 pm, again with a few exceptions. The problem sets will not all be worth the same number of points; your final grade will be total number of points you receive, expressed as a percentage of the total number of points possible. That is, problem sets with more points will count a little more than the others.

Some of the the problem sets will offer additional problems for extra credit. We will keep track of the extra credit grades separately, and at the end of the course I will consult with John Belcher and Cagin Yunus to set grade cuts based solely on the regular coursework. We will try to make sure that the grade cuts are reasonable with respect to this data set. Then the extra credit grades will be added, allowing the grades to change
upwards accordingly. Finally, we will look at each student’s grades individually, and we might decide to give a higher grade to some students who are slightly below a borderline. Students whose grades have improved significantly during the term, and students whose average has been pushed down by a single low grade, will be the ones most likely to be boosted.

The bottom line is that you should feel free to skip the extra credit problems, and you will still get an excellent grade in the course if you do well on the regular problems and the exams. However, if you are the kind of student who really wants to get the most out of the course, then we hope that you will find these extra credit problems challenging, interesting, and educational.

**COURSE CONTENT:**

I intend to discuss the material in the first 11 chapters in the textbook:

1. Vector Analysis
2. Electrostatics
3. Potentials
4. Electric Fields in Matter
5. Magnetostatics
6. Magnetic Fields in Matter
7. Electrodynamics
8. Conservation Laws
9. Electromagnetic Waves
10. Potentials and Fields
11. Radiation

We will omit the last chapter, Electrodynamics and Relativity, since that topic is very well covered in 8.033.

**HOMEWORK POLICY:**

In this course I regard the problem sets primarily as an educational experience, rather than a mechanism of evaluation. I have allocated 25% of the grade to problem sets in order to encourage you to do them, and to make life easier for students who find it difficult to do well on quizzes. You should feel free to work on these problems in groups, and I would strongly encourage you to do so. With the right mix of students, the homework can be more fun and more illuminating. I will in fact soon be setting up a Class Contact webpage to help you make contact with each other.
However, it is important pedagogically that each student write up the solution independently. The simple copying of a friend’s paper is not the kind of effort that the grading is intended to encourage. Using 8.07 solutions that have been circulated in previous years is strictly off limits. Using other sources, such as other textbooks or web documents, is considered perfectly okay, as long as you write up the solution in your own words.

A homework problem which appears to be copied from another student, from a solution circulated in a previous term, or copied more or less verbatim from some other source (without rewriting in your own words) will be given a reduced grade, possibly a zero. Except in blatant cases, however, students will be given a warning the first time this happens, and will be given an opportunity to redo the relevant solutions. Since the homework is intended primarily for learning, and not evaluation, there is nothing that you can do on the homework — in this course — that will lead to an interview with the Committee on Discipline. I say this because I want to strongly encourage you to work in groups on the homework, and I don’t want you to feel that there are any hidden dangers. (Remember, however, that you should not assume that this policy holds in other classes; different professors have different points of view on these issues.)

MORE ADVANCED READING:

There are some excellent graduate-level textbooks on electrodynamics that some of you might want to look at:


**Modern Electrodynamics** (Cambridge University Press, 2012), by Andrew Zangwill.


These books are well beyond the level of this course, but I mention them in case any of you become interested in pursuing some topic at a more advanced level.

THE COURSE WEBSITE:

http://web.mit.edu/8.07/www

We will not be using Stellar or Learning Modules, except that we will be using Gradebook to keep track of your grades.