9/1/01

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Physics

Physics 8.01 Fall 2001

COURSE INFORMATION SHEET

http://web.mit.edu/8.01/www/Fall01

Lecturer	**Address**	**Office Phone**	**E-mail**
Edward Farhi	6-309	253-4871	farhi@mit.edu
Course Administrator			
Alan Guth	6-209	253-6265	guth@ctp.mit.edu
Course Manager			
Maria Springer	4-352	253-4461	maria@mit.edu
WebMaster			
John Ventresca	4-358	253-4522	jventres@mit.edu

8.01 is the mid-level first-year physics course, aimed at the majority of MIT students. It is paced faster than 8.01L, it is less rigorous that 8.012, and it does not have the emphasis on take-home experiments that characterizes 8.01X. Our goal is to convey the excitement of the physicist's quest to understand nature at its deepest level, and at the same time to provide the knowledge and tools that you will need to continue your studies in science or engineering. We hope you will enjoy the course.

Lectures:

Lectures will be given by Prof. Edward Farhi on Mondays, Wednesdays, and Fridays at 10:05 a.m. and again at 11:05 a.m., in Room 26-100. The lectures will explain the concepts that you are expected to understand, and will also include demonstrations aimed at solidifying your grasp of the material.

Recitation Classes:

You will be assigned to a recitation class that meets twice a week, for 50 minutes each meeting. These classes will give you an opportunity to ask questions about the material, and to practice the art of problem solving. If you need to change your recitation class, ask at the Physics Education Office, Room 4-352.

Tutoring and Instructors' Office Hours:

Graduate student tutors will be available in Room 4-344 throughout the term, and you are strongly encouraged to seek their help. Tutoring sessions last 25 minutes. Initially they will be on a drop-in basis, but we may switch to a sign-up system if there is a problem with overcrowded sessions. The tutoring schedule will be posted on the 8.01 website and also outside Room 4-344.

As described in *8.01 Grading Policy*, which will be distributed in lecture and posted on the web, you may even be able to earn credit toward your grade by attending the tutoring sessions.

In addition, you are also welcome to attend the office hours of any instructor in the course. A list of the office hours of all the instructors will be made available on the course website.

8.01 Study Guide:

Essentials of Introductory Classical Mechanics, 5th Edition
by Wit Busza, Susan Cartwright, and Alan H. Guth.

The Study Guide is available from the Coop for $22.50, and is a required purchase. It was written especially for this course and will be your main resource for the course's material. It defines the content of the course, provides a concise discussion of the relevant principles of physics, and includes a large collection of physics problems, some with full solutions and some without. If by the end of the term you understand and know how to use the material in the Study Guide, you will deserve an *A* for the course.

Since the Study Guide is still under development, it very likely contains some errors. As we discover these errors, we will post them on the website. If you discover any errors, we would very much appreciate your sending an e-mail message about them to Alan Guth (guth@ctp.mit.edu). No error is too small to be worth correcting.

Textbook:

Physics For Scientists and Engineers, 3rd Edition, Vol. I
by Douglas C. Giancoli.

The textbook is available at the Coop for $78.50, and is also a required purchase. The Coop will be offering a package consisting of the Busza/Cartwright/Guth Study Guide and the Giancoli textbook, for $91.00. The 8.02 course to be taught next spring (2002) is expected to use a different textbook, so the purchase of Vol. II or the combined edition will not free you from purchasing another textbook next term.

When the material in the Study Guide is too concise for your taste, you can turn to the textbook, which provides more detailed derivations and explanations of the results and formulas. It also has more worked examples and problems, problem-solving hints, etc.

Problem Sets:

Problem sets will be assigned about once a week; the exact schedule of hand-out dates and due dates is included on the Course Calendar, attached to this handout. Most of the problems will come from the Study Guide, while some will come from the textbook by Giancoli. The problem sets will be handed out in lecture and will also be available on the course website. They will be due in Room 4-339B, by 4:30 p.m. on the due date. The problem sets will be graded.

We believe that working out the problems on the homework is absolutely essential to learning the material of this course. Trying to learn physics without doing problems is like trying to learn how to ride a bicycle by reading a book. We strongly encourage students to get together in groups to discuss the homework, but of course the mere copying of solutions written by your friends will not help you learn physics. Solutions to each problem set will be made available immediately after they are due.

Examinations:

Recitation Quizzes: On 5 selected weeks, 25-minute quizzes on the current chapter will be given in the Wednesday and Thursday recitation sections. The dates of the recitation quizzes are shown on the Course Calendar.

50-minute Exams: Three lecture periods during the term — Monday September 24, Monday October 2, and Monday November 19 — will be used for 50-minute exams. Each exam will focus on all the material since the previous exam, and will include at least one problem that is at most a slight modification of a previously assigned homework problem. Some students will take these exams in the usual lecture room, 26-100, and others will be assigned to Room 50-340 (3^{rd} floor of Walker Memorial).

Target Scores: The material in this course is tightly interconnected, so it is very difficult to understand the contents of Chapter N if you are not comfortable with the ideas in Chapters $1 \ldots N-1$. For that reason, we want to do everything that we can to encourage you to stay on top of the subject, avoiding any gaps in your understanding. As part of this encouragement, after each exam Prof. Farhi will announce a ***target score*** — a level that is comfortably above the passing line, which we would like all students to attain. Students who fall below the target score will have the opportunity to improve their grades (and their understanding) by taking a Make-Up Exam, and/or by attending the tutoring sessions.

Make-Up Exams: The Make-up Exams will be given on Tuesday evenings at 7:30 p.m., at least one week after the original 50-minute Exam. The dates for the 50-minute Exams and the Make-up Exams are shown on the Course Calendar.

Final Examination: There will be a three-hour final exam during the regular final examination period at the end of the term. The final exam will cover all the material from the course. There will be no make-up final.

Grading:

Problem Sets	10%
Recitation Quizzes	16%
50-minute Exams	36%
Final Exam	38%

The details of the grading policy will be discussed in a separate document, which will be distributed in lecture and posted on the 8.01 web page.

Academic Behavior and Honesty:

During quizzes and exams, exchange of information with others is unacceptable. So is the use of notes or other materials, unless explicitly authorized. You will not be allowed to use calculators (they will not be needed). Anyone suspected of violating these guidelines will be charged with academic dishonesty and subject to MIT's disciplinary procedures. However, you are strongly encouraged to get together in groups to discuss the problem sets and the material presented in the course.

The Physics Interactive Video Tutor (PIVoT):

MIT's Center for Advanced Educational Service (CAES), in collaboration with the Physics Department, is producing a new learning environment on the web for those taking a Newtonian Mechanics course. On the PIVoT web site, you can watch streaming videos of all 35 of Prof. Walter Lewin's 8.01 lectures (taped in Fall 1999), available in full 50-minute format as well as shorter, topic-specific segments. There are also help sessions by Prof. Lewin, organized by keywords and topics, in which he shows you how to solve problems similar to the ones that will be assigned. You can access an entire on-line textbook (*Physics*, 2nd ed., Hans Ohanian, W.W. Norton Publishing Co.), interact with dynamic Java physics simulations, and find answers to Frequently Asked Questions. You might find it useful and we encourage you to check it out. You can access PIVOT through Athena, at http://curricula2.mit.edu/pivot/, or through a link on the 8.01 website. If you have any technical difficulties with the site, contact pivot-support@mit.edu.

8.01 WWW Website:

At http://web.mit.edu/8.01/www/Fall01, the 8.01 website includes quizzes and solutions from past years. It will also be used to post all announcements, problem sets, problem set solutions, and exam solutions as the term progresses. You are invited to use the anonymous feedback page to relay comments, complaints, or suggestions about the course, or about the website. Messages that you write on the feedback page concerning the course are forwarded anonymously to the lecturer, Prof. Edward Farhi. Messages about the website are forwarded anonymously to Alan Guth (Course Administrator) and John Ventresca (Webmaster).