Massachusetts Institute of Technology

Department of Physics

Physics 8.04 February 5, 1997

Quantum Physics I, Spring 1997
http://web.mit.edu/8.04/www/8.04.html

Course Information

Lecturer: Tomás Arias, Rm. 12-110, x3-6831 (muchomas@mit.edu).
Lecture: TR 2:30-4:00, 6-120
Office hours: T4:00-5:00

Recitation Instructors:
Craig A. Ogilvie, 26-413, x3-4184.
Sec. # 1: MW 10:00, 24-402
Sec. # 2: MW 11:00, 13-3101
Office hours: To be announced in recitation

Samir D. Mathur, 6-302, x3-4866 (mathur@mitlns.mit.edu).
Sec. # 3: MW 3:00, 2-135
Sec. # 4: MW 2:00, 2-139
Office hours: To be announced in recitation

Course Secretary:
Steve Malley, x3-4461 (smalley@mit.edu).

Textbooks:
Heisenberg *The Physical Principles of the Quantum Theory* (Dover Publications, 1949).
Resnick and Halliday, *Basic Concepts in Relativity and Early Quantum Theory, 2nd Ed.* (Macmillan, 1992).
Gasiorowicz *Quantum Physics, 2nd Ed.* (Wiley, 1996).

References:
French and Taylor *An Introduction to Quantum Physics* (W.W. Norton).
Eisberg and Resnick, *Quantum Physics of Atoms, Molecules, Nuclei, and Particles, 2nd Edition* (Wiley).

Getting the most from the lectures:
Students generally get more out of a lecture if they have a sense of the material to be covered and some questions already formed in their minds. Selected short readings will be assigned at the top of each new problem set. It is highly recommended that this reading be done, even if cursorily, *before* attending the corresponding lecture.

Problem Sets:
Beyond the short readings and the lectures, the third element of the learning process is working the weekly problem sets. Students should feel free and are encouraged to discuss and ask conceptual and practical advice on the problem sets from the teaching staff and from each other. The problem sets are meant to encourage discussion but also make up a significant part of the grade. Therefore, after the discussion process, **students are to sit down and write up the solutions by themselves**. If you and your study partner end up using the same sentences and variable names in your solutions, this is a sign that you are collaborating too closely.

There will be ten problem sets, handed out after the Thursday lecture each week except when there is a quiz the following week. The problem sets are due eight days later at 5:00 PM *sharp* on Friday of the next week. They are to be turned in to the appropriate problem set cubby in room 4-334. **Late problem sets absolutely will not be accepted and will receive a grade of zero,** unless a special arrangement for extenuating circumstances (usually medical, verifiable with a note from the medical center) has been made with **Prof. Arias** *at least twenty-four hours prior* to the due date. Arrangements cannot be made for this with the recitation instructors. To mitigate unfortunate circumstances, **the lowest one of your ten problem set scores will be dropped in forming your problem set average.**

Exams:
There will be two (2) one and one-half hour quizzes scheduled during lecture time and a three hour final exam. The quizzes will be closed-book and will take place on Thursday March 6, the day before add date, and April 17, one week before drop date. There will also be a final exam scheduled during the final exam period, May 19-May 23.

Grades:
The relative weighting of exams and problem sets will be as follows:

Problem Sets	30%
Quiz I (March 6)	20%
Quiz II (April 17)	20%
Final Exam	30%

The final distribution of grades (i.e., “A,” “B” or “C” centered) will be determined by the class’s overall performance over the semester.

Partial Credit:
Partial credit, particularly on exams, will be awarded generously only in those cases involving minor algebraic errors. Incomplete physical reasoning or simply writing down formulas without physical justification will not result in credit for the problem in question. Great pains have been taken to implement a system with uniform grading; each problem will be graded by only one grader. Therefore, **awards of partial credit will not be adjusted on an individual basis** as it would be grossly unfair to the rest of the class to adjust the credit of one student with out adjusting that of the entire class. Granting partial credit to the entire class uniformly assures that the system is fair.

Grading Corrections:
You are strongly encouraged to bring to our attention cases where graders have miss-graded, including simple mistakes, not noticing information which you provided in your solution, and not giving credit for valid alternate solutions. To resolve these matters, please write a brief explanation of the grading error and **submit this written explanation along with the paper to be corrected directly to your recitation instructor**. This must be done within two weeks of the return of your problem set or quiz. **Grades become final after two weeks of being returned to you.**

Written explanations such as "The grader didn't see the rest of the solution on the top of the next page," or "I believe my alternate solution to 3b) wasn't graded properly because ..." will suffice but more information may be provided if you feel it helps your case. If it is a case of an alternate solution please be sure to write "alternate solution" explicitly on your problem set.

Excused Absences:
Only the Dean can excuse a student from a final exam. Excuses for the exams must be verified with documentation from the medical center.

Good luck!!!
This semester you will study the intellectual underpinnings of one of the keystones of modern science, Quantum Theory. It is a pleasure for us to teach this course. We wish you all a productive, enjoyable and stimulating semester.