PHY 414  Quantum Physics  Fall 2006

Class times: UH 10:00-11:50 Location: 318 WIL

Instructor: Miriam Deutsch  Office: 275 WIL  Tel: 6-5973
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Course text(s)

The required text is Introduction to Quantum Physics by Griffiths (2nd edition, 2005). I will at times resort to other books, which I will point you towards when necessary. Those books will be put on reserve in the library. There is no single comprehensive text in quantum mechanics that would also make the perfect class text at this level. The books vary in approach, complexity and topics covered. Our text is just one of many. It would be good practice to start using more than one reference book. Any book that’s not too elementary and you can relate to will help. Some texts which I always recommend are Liboff (starts from the very basics, simple at times, detailed); Peebles (more advanced, beautiful introduction on the foundations of quantum mechanics and chapter on measurement theory); Shankar (intermediate, very good for self study); and then there is Townsend which is a technically advanced book, but very thorough and rigorous. This book assumes you can handle the formalism, but is clear on the physical phenomena and its interpretations.

Course outline

This course is the first in a three-term sequence of Quantum Physics. During this term we will get acquainted with the new phenomena and formalisms of the quantum world. We will not devote a lengthy amount of time to the historical background of the field, although it is a fascinating topic by itself. We will discuss some examples that emphasize the inadequacy of classical concepts, and demonstrate in an unequivocal fashion the need for a new physical formalism. We will then move on to the mathematical formalism of QM, and apply it to solve some simple yet fundamental problems.

Homework

Homework will be assigned weekly and will be collected the following week. Assignments will be submitted in class directly to me. Assignments may not be submitted by email unless you are instructed to do so. Solutions to the homework problems will also be provided. It is important you review them, as they might hold additional
information to what we do in class. You should always make an effort to submit your assignments on time. Homework submitted up to 24 hours late will receive 80% credit. Assignments received later than that will not get credit. Special circumstances and emergencies may be accommodated on a case-by-case basis. In such cases you should contact me as soon as possible to discuss your specific needs.

Course web site: http://blackboard.uoregon.edu/

I will post homework assignments, course announcements and handouts. Solutions to homework problems will also be posted. You will need to check regularly for updates.

Exams and Grade determination:

Homework – 30%
Midterm 1 (TBA) – 15%
Midterm 2 (TBA) – 15%
Final – 40% (Thursday, December 7, 8:00am, WIL 318)