PHYS 417  Quantum Physics  Spring 2008

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

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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 form the very basics, simple at times, detailed.), 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 term we will concentrate on applications and approximation methods in quantum physics. We will be applying the formalisms studied so far to describe more realistic systems and effects. We will cover standard approximation methods such as perturbation theory and variational methods. This will help us understand spectra of certain atoms in the periodic table. Interactions with radiation will also be introduced, to lay the foundations for understanding absorption and emission of light in atoms. We will mainly focus on Chapters 6,7,9. We will then jump to Ch. 12 and discuss some of the more interesting implications of quantum theory.

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 website: 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 – 50%
Midterm (TBA) – 20%
Final Exam – 30%