Physics 31b: Quantum Theory II

Fall 2015

Instructor:  Prof. Matthew Headrick  
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Office: Abelson 310  
Office hours: Monday 9:30–10:50am and by appointment. You are also welcome to knock on my door at any time, and I will meet with you if I can.

Time and place: Lecture: Tuesday and Friday 9:30–10:50am in Abelson 229. Recitation: Thursday 3:30-4:50pm (starting Sept. 3) in Abelson 126.

Credits: Four-Credit Course (with three hours of class-time per week). Success in this 4 credit-hour course is based on the expectation that students will spend a minimum of 9 hours of study time per week in preparation for class (readings, problem sets, recitations, preparation for exams, etc.).

Content: This course will be a continuation of Physics 31a, describing methods and applications of quantum mechanics. We will follow Griffiths' Introduction to Quantum Mechanics. After reviewing chapters 3 (principles of quantum mechanics) and 4 (three-dimensional systems), we will cover chapters 5 (identical particles), 6 (time-independent perturbation theory), and 7 (variational method).

Assignments: An assignment will be due approximately every week (usually on a Tuesday), which will generally include a reading and a problem set. The problem set will include some relatively straightforward exercises based directly on the reading, as well as some harder problems based on the previous week's material. You are encouraged to work together in solving the problems (or at least to check your solutions), but you must write the problem set up by yourself (no copying). Problem sets will be graded based on both the correctness of the physics and the quality of the presentation. Late problem sets (or portions thereof) will be given 50% credit if handed in within one week of the original due date.

You are also required to submit one question on the reading assignment each week on Latte. The question can be either about something you didn’t understand or about a possible extension or application of the material. (There will be a separate Latte forum for questions about the problem sets.) The question should be submitted by class time on the day the problem set is due.

Exam: There will be an in-class midterm and an in-class final exam.

Grade: Your grade for the course will be calculated as follows: 10% for class participation (including submission of questions on the reading); 40% for problems sets; 10% for the midterm; and 40% for the final exam.