

# Winter 2010

## Chemistry 215B: Quantum Mechanics

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Office Hours:  
Monday 3:00pm  
Wednesday 3:00pm  
And by appointment if necessary

**Class Meetings:** Lectures will be held on Mondays and Wednesdays from 10:00am to 11:50am in Young Hall 3069. Homework will typically be assigned on Fridays (online) and will be due on the following Friday unless specified otherwise. Mr. Vaca will hold a discussion section on Fridays at 11:00am in Young Hall 3069. Typically, he will collect the homework.

### Books:

*Modern Quantum Mechanics* Revised Edition, J.J. Sakurai, Addison Wesley Longman, Reading (1994).

*Lectures on Quantum Mechanics*, Gordon Baym, Addison-Wesley, Redwood City (1973)

*Quantum Mechanics (Non-relativistic Theory): Course of Theoretical Physics Vol. 3*, L.D. Landau and E.M. Lifshitz, Pergamon Press, Oxford (1977).  
*Quantum Mechanics*, L.I. Schiff, McGraw-Hill, New York (1955).

*Group Theory in Physics: An Introduction to Symmetry Principles, Group Representations, and Special Functions in Classical and Quantum Physics*, W.-K. Tung, World Scientific, New Jersey (1985).

**The principal text** for the class and the currently used classic. The class will, in large part, follow directly the presentation in this book.

**A recommended supplementary text** for the course. It expands on the main text giving important examples and more physical problems. Part of the classic series of theoretical physics. It is concise and complete with many worked-out example problems.

The main classic text of the last generation.

A focused discussion of the use and power of group theory in understanding quantum mechanics. An excellent discussion of continuous groups and the rotation group in particular.

**Prerequisites:** Chemistry 110B and Math 33A/B. I assume that all students are already proficient with multivariable calculus, differential equations, and some complex analysis. Nevertheless, we will review some of the mathematics as it comes up in the course.

### Exams and Grading:

There will be **one midterm** given in class on **February 10, 2010**.

Your final grade in the course will be determined as follows:

|          |     |
|----------|-----|
| Homework | 30% |
| Midterm  | 30% |
| Final    | 40% |