

## **Physics 215    Intro To Non-Rel. Quantum Mech.    Winter 2015**

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Instructor:            Stefano Profumo  
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Phone Number:        831-459-3039  
Office Hours:         Tuesday 2:00 PM (or – better – by appointment)  
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Course Web Page:     [http://scipp.ucsc.edu/~profumo/teaching/phys215\\_15/phys215.html](http://scipp.ucsc.edu/~profumo/teaching/phys215_15/phys215.html)

Lectures:             Monday and Wednesday 3:30 PM – 5:25 PM  
Lecture Room:        ISB, Room 231

### **Course Description**

An introduction to non-relativistic quantum mechanics, from basic postulates to simple quantum systems and techniques to more advanced, fun topics.

### **Course Outline**

1. Math preliminaries
2. The Postulates of QM
3. Problems in 1D
4. The Harmonic Oscillator
5. Path Integral
6. Heisenberg Uncertainty Relations
7. Symmetries and Conservation Laws
8. Angular Momentum
9. The Hydrogen Atom
10. Spin
11. Addition of Angular Momenta

**“Recommended” Textbooks**

- *Modern Quantum Mechanics* by Sakurai (1 day reserve)
- *Principles of Quantum Mechanics* by Shankar (1 day reserve)

**Other Reference Textbooks**

- *Lectures on Quantum Mechanics* by Baym (1 day reserve)

**Homework and Grading Policy**

Grading will consist of 40% Homework, 20% Midterm (tentatively scheduled for Monday, February 9) and 40% Final (Wednesday, March 18 7:30 -10:30 PM, or date/time TBD). We will target a level of difficulty for homework and especially for the two written tests comparable to the “Written Qualifying exam” level. Collaboration is strongly encouraged for homework, but is as strongly discouraged for the written tests.

**An illuminating quote**

“Mr. Faulkner, some of your readers claim they still cannot understand your work after reading it two or three times. What approach would you advise them to adopt?”

William Faulkner: “Read it a fourth time”