Physics 215	General Information	Winter 2018

Instructor: Howard Haber
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Office Hours: Mondays and Tuesdays 2–3 pm

COURSE WEB PAGE:

`http://scipp.ucsc.edu/~haber/ph215/`

CLASS HOURS:

Lectures: Tuesdays and Thursdays, 11:40 am—1:15 pm, ISB 231

REQUIRED TEXTBOOKS:

Modern Quantum Mechanics (2nd edition), by J.J. Sakurai and Jim J. Napolitano

RECOMMENDED OUTSIDE READINGS:

Principles of Quantum Mechanics, by Ramamurti Shankar
Lectures On Quantum Mechanics, by Gordon Baym

OTHER SUGGESTED OUTSIDE READINGS:

Quantum Mechanics, by Ernest Abers
Quantum Mechanics, by Gennaro Auletta, Mauro Fortunato and Giorgio Parisi
Quantum Mechanics, Vols. 1 and 2, by C. Cohen-Tannoudji, B. Diu and F. Laloe
Quantum Mechanics and Quantum Information, by Moses Fayngold and Vadim Fayngold
Quantum Mechanics: Fundamentals (2nd edition), by Kurt Gottfried and Tung-Mow Yan
Quantum Mechanics–An Introduction (4th edition), by Walter Greiner
Quantum Mechanics–A New Introduction, by Kenichi Konishi and Giampiero Pafftuti
Quantum Mechanics (Non-relativistic Theory), by L.D. Landau and E.M. Lifshitz
Quantum Mechanics, Vols. 1 and 2, by Albert Messiah
Quantum Theory–A Wide Spectrum, by E.B. Manoukian
Practical Quantum Mechanics: Modern Tools and Applications, by Efstratios Manousakis
Quantum Mechanics (3rd edition), by Eugen Merzbacher
Quantum Mechanics (4th edition), by Franz Schwabl
Lectures on Quantum Mechanics, by Steven Weinberg
Quantum Mechanics, Vol. 1: From Basics to Symmetry and Perturbations, by Vladimir Zelevinsky

COURSE OUTLINE

1. Mathematical introduction
2. Postulates of quantum mechanics
3. Quantum dynamics
4. The harmonic oscillator
5. Further aspects of quantum mechanics in one dimension
6. Scattering in one dimension
7. Symmetries in quantum mechanics
8. Angular momentum in quantum mechanics
9. Rotationally invariant problems in three dimensions
10. The hydrogen atom
11. Further topics in the theory of angular momentum

Course Grading and Requirements

50% Homework (5 problem sets)
20% Midterm Exam (one day take-home exam, Tuesday February 20–Wednesday February 21)
30% Final Exam (Tuesday March 20, 2018, 8—11 am)

Homework assignments are *not* optional. Homework assignments are typically due on Thursdays (with two weeks allotted for each homework set). You are encouraged to discuss the class material and homework problems with your classmates and to work in groups, but all submitted problems should represent your own work and understanding.

The midterm exam will be a one day take-home exam. The final exam will be an open book/open notes in-class exam that will be held in the same classroom as the lectures. You will be permitted to consult any textbook of your choosing, your class notes, and any class handout (including solutions to the problem sets). The final exam will cover the entire course material. You must take the final exam to pass the course.