

PHY6645, Applied Quantum Mechanics (Spring 2017)

Instructor: Dr. Inna Ponomareva; Office: ISA 5103; E-mail: iponomar@usf.edu; telephone: 974-7286

Text: Quantum Mechanics , 2nd ed; Publisher: Wiley; Authors: Claude Cohen-Tannoudji, Bernard Diu, Franck Laloe

Recommended book: Feynman lectures, volume 3. The e-book is free to USF students at

<http://usf.ebib.com/patron/FullRecord.aspx?p=4471388>

A.J. Levi, Applied Quantum Mechanics

Class: TR 9:30am-10:45am ISA 2051

Office Hours: MW 2:00pm-3:00pm and by appointment.

Course Outline and Objectives

The course targets fundamental principles of quantum mechanics and their applications. The focus in this semester will be on scattering by a potential, electron spin, addition of angular momenta, perturbation theory, methods for time-dependent problems, systems of identical particles. The main ideas are understood and re-enforced by developing conceptual knowledge and problem-solving skills. Problems will be assigned from each chapter of the text. In addition, conceptual questions will be offered. Two randomly chosen problems from the homework will be graded. The homework will be due at the beginning of the first lecture of the next chapter. In addition, there will be a quiz after each chapter that emphasizes basic concepts of the material learned. I will give exact dates for these quizzes about one week in advance. In studying for the quizzes and examinations you are encouraged to work on problems in the book in addition to those assigned. Please read the text before each lecture. Although I will not require attendance, it is paramount that you come to every lecture in order to keep up with the work. Please come see me during office hours if you have missed a lecture to get 'up to speed' on the course work.

Course Grading Breakout	Homework Problems	20 %
	Quizzes	20 %
	Mid-term Exam	30 %
	Final	30 %

Course Grading

> 93	A
90 < 93	A-
87 < 90	B+
84 < 87	B
80 < 84	B-
77 < 80	C+
74 < 77	C
70 < 74	C-
67 < 70	D+
64 < 67	D
60 < 64	D-
< 60	F

Tentative Schedule and Examination Dates

Week Beginning	Topics (Chapters in Text)
Jan 8	Scattering by a potential (VIII + complements)
Jan 15	
Jan 22	Electron spin (IX + complements)
Jan 29	
Feb 5	Addition of angular momenta (X + complements)
Feb 12	Mid-term on Chapters VIII, IX, X + Ch. X Quiz on Thurs Feb 16
Feb 19	Stationary perturbation theory (XI+complements)
Feb 26	
Mar 5	An application of perturbation theory (XII+complements)
Mar 12	Spring Break
Mar 19	
Mar 26	Approximation methods for time-dependent problems (XIII+complements)
Apr 2	
Apr 9	Systems of identical particles (XIV+complements)
Apr 16	
Apr 23	
Apr 30	FINAL on Chapters XI, XII, XIII, XIV + Ch. XIV Quiz on Thursday May 4 7:30 AM – 9:30 AM

NOTE

Students who anticipate being absent from exams due to a major religious observance must provide notice of the date(s) and event(s) to the instructor, in writing, by the second class meeting. Notes and Tapes are not permitted for purposes of sale.

Any student with a disability is encouraged to meet with me privately during the first week of class to discuss accommodations. Each student must bring a current Memorandum of Accommodations from the Office of Student Disability Services (974-4309, SVC1133) which is prerequisite for receiving accommodations. Accommodated examinations through the Office of Student Disability Services require at least two weeks notice.