

## **PHY6645, Quantum Mechanics (Fall 2016)**

**Instructor:** Dr. Inna Ponomareva; Office: ISA 5103; E-mail: [iponomar@usf.edu](mailto:iponomar@usf.edu); telephone: 974-7286

Text: Quantum Mechanics , 2<sup>nd</sup> 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>

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. The focus in this semestre will be on introduction and mathematical tools of quantum mechanics, its postulates and their application to model problems, angular momentum, and particles in central potential. 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.

<b>Course Grading Breakout</b>	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)
Aug 21	Intro to the fundamental ideas of quantum mechanics (I + complements)
Aug 28	
Sept 4	The math tools of quantum mechanics (II + complements)
Sept 11	
Sept 18	The postulates of quantum mechanics (III+complements)
Sept 25	
Oct 2	Application of postulates to simple cases (IV+complements)
Oct 9	Mid-term on Chapters I, II, III & IV + Ch. IV Quiz on Thurs Oct 13
Oct 16	The 1D harmonic oscillator (V+complements)
Oct 23	
Oct 30	Angular momentum in quantum mechanics (VI+complements)
Nov 6	
Nov 13	Particle in a central potential (VII+complements)
Nov 20	
Nov 27	
Dec 4	FINAL on Chapters V, VI, and VII + Ch. VII Quiz on Thursday Dec 8 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.