Course Syllabus

Number: PHY 412

Title: Introduction to Quantum Mechanics

Prerequisites: PHY 411

Semester, Year: Spring Semester, 2016

Meeting Dates/Times/Location: Tuesdays/Thursdays, 11:10-12:25, Nielsen 307

Instructor/Contact Information: Prof. Anthony Mezzacappa, Room 206 South College, mezz@utk.edu

Grader/Contact Information: Krishna Koirala/kkoiral2@vols.utk.edu

Office Hours: Tuesday/Thursday, 4-5 (or by appointment)

Required Textbook: Introduction to Quantum Mechanics (Second Edition), David J. Griffiths

Material Covered: Chapters 4, 5, 6, 9, and 11 (Time permitting, we may also consider Chapter 8.)

Brief Course Description: In PHY412, we will begin by studying new physical observables such as angular momentum and spin. We will then move beyond single particle systems and study systems of two or more particles. We will also study more complex time-independent and time-dependent systems, relative to those studied in PHY 411, using time-independent and time-dependent perturbation theory, respectively. We will end the course with a study of scattering theory. (Time permitting, we may also consider the WKB approximation.)

Central Learning Objectives: Extend the methods learned in PHY 411 to more complex systems and learn the key approximations used in studying these systems. Learn scattering theory. Develop a deeper, and modern, understanding of the interpretation of quantum mechanics.

Degree-Level Learning Objective: PHYS 411-412 are core course requirements for the Physics Major.

Semester Outline: January - Chapters 4/5, February - Chapters 5/6, March - Chapters 6/9, April - Chapter 9/11 (Time permitting, we may also consider Chapter 8.)

Grading: A student’s final grade will be based on his/her combined performance on weekly problem sets (weight 40%), the midterm exam (weight 30%), and the final exam (weight 30%). The student’s final course (letter) grade will be computed using a scale determined by the instructor at the end of the course.

Problem sets will be assigned most weeks and will be due at the beginning of class the following week. Students are encouraged to work together on these. However, solutions to problem sets must be submitted in the student’s own hand.
The date of the midterm exam will be announced in class. The date of the final exam will be made available on the University Academic Calendar.

Make-Up Policies: For circumstances beyond a student’s control, late problem sets and make-up exams (mid-term, final) may be permitted. This will be determined on a case-by-case basis.