PHYS5702 Quantum Mechanics II Fall 2018

This is a graduate course in quantum mechanics, building on the fundamentals we learned in PHYS5701 in Spring 2018. The focus now will be on applications and extensions of what we learned last semester.

We will begin by covering approximation methods, using perturbation theory and other methods, including time dependent Hamiltonians. Then we will cover scattering, followed by multi-particle systems to introduce you to quantum field theory. Finally, we'll learn how to make quantum mechanics consistent with special relativity.

MATHEMATICA will continue to be useful, more so in this course than in PHYS 5701.

INSTRUCTOR: Jim Napolitano SERC 416 1-7827 email: tuf43817@temple.edu
Office Hours: Fri 3-5pm in SERC 404, or *by appointment*

GRADING: Prof. Edward Gawlinski email: ed@temple.edu

WEB PAGE: https://phys.cst.temple.edu/~napolj/PHYS5702/

MEETINGS: SERC 229 Tue 12:30-13:50, Thu 12:30-13:50

TEXTBOOK: Sakurai & Napolitano, *Modern Quantum Mechanics*, Second Edition

A syllabus is posted on the course web page, along with the homework assignments. There will be some adjustments to the regular schedule (including makeup sessions) when I have to miss classes because of travel.

GRADING POLICY: Grades will be determined by scores on the homework assignments. There is no final exam, but the last homework assignment must be worked independently, and will account for 30% of the course grade. You are encouraged to collaborate on the other homework assignments, and they will account for the remaining 70% of the grade.

Cutoffs for course grades A, B, and C are 90%, 80%, and 70%, respectively. I expect to make some use of "grade modifiers", that is $\pm$ after the grade. I may make other adjustments to the overall grading scheme if there are special circumstances.

LEARNING OUTCOMES

Upon successfully completing the course students will demonstrate an ability to apply concepts and theories of Quantum Mechanics in problem solving tasks, as well as the ability to make use of physical principles along with mathematics to describe quantum mechanical phenomena. The quizzes will emphasize these abilities, as well as the raw knowledge associated with this subject.

ACADEMIC INTEGRITY STATEMENT

Put simply, don't copy someone else's homework, and don't collaborate on the final homework assignment. If I suspect you of either, I will ask for an explanation. If your explanation is unsatisfactory, you will be given a grade of zero and reported to the College. If this happens more than once, you will be given an F for the course.