Physics 435B **Quantum Mechanics** **Spring 2019**

Course Description: This course extends the use of Schrodinger's equation with a variety of approximation methods to study physical systems including atomic physics, nuclear structure, and scattering problems.

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Office Hours: MWF 11-11:50am and others times by appointment.

Text: David Griffiths, *Introduction to Quantum Mechanics (2nd or 3rdEdition)*.

Software: *Mathematica* will be used and discussed in class. You may use other mathematical software at your discretion.

Prerequisites: Phys 435A (Phys 301AB, 302AB recommended)

Course Summary: We will cover part II (chapters 5 - 11) of Griffiths' book. The course will be taught in a discussion format. Each class we will discuss the problems that will be collected at the next class. You must therefore be responsible for completing those problems that are due and for getting started on the problems that we will be discussing.

Course Schedule: The class schedule is posted on-the course page.

The Rules: To keep the discussion format of the class running it is essential that homework be done on time. **Late homework will have a 20% deduction for each class period that it is late.**

Student Learning Outcomes: The following outcomes will be addressed in this course.

Outcome 1.1 Explain physics concepts and laws to others.
Outcome 1.2 Apply physics knowledge to solve real-world problems.
Outcome 1.3 Represent physical concepts and processes in multiple ways, including diagrams, graphs, mathematical equations, and verbal explanations.
Outcome 2.1 Build a model of physical situations, including making appropriate assumptions, simplifications, estimations, and mathematical formulations. Students should also understand the limitations of these models.
Outcome 2.3 Use computational methods to simulate, analyze, and present data from physical systems.
Outcome 2.4 Evaluate the validity of experimental and/or calculated results.
Outcome 3.1 Effectively communicate their findings and thoughts in conventional scientific style, including in writing, orally, and graphically.
Outcome 4.2 In the context of problem solving or conducting an investigation, recognize gaps in their knowledge and be able to marshal diverse resources to fill those gaps.