A. Course Description

This course is the first quarter of a three quarter sequence in undergraduate level quantum mechanics. Previous experience that will be helpful in this course is intermediate level electrodynamics and classical mechanics, solving differential equations in a physics context, and familiarity with multi-variate calculus, matrices and complex numbers. If you are concerned with your background, please let me know and we can work to address this as best as we can.

B. Learning Outcomes

Through this course, students will learn:

- In what ways quantum mechanics differs from classical physics
- How to calculate and interpret quantum mechanical probability distributions, averages, and uncertainties
- How to solve various quantum mechanical systems including the free particle, particle in a box, and harmonic oscillator
- How to apply mathematical concepts in linear algebra (e.g. vectors, operators, eigenvalues) to quantum mechanics (e.g. states, measurement outcomes)

C. Text and other Course Requirements

The textbook for this course is “Introduction to Quantum Mechanics” 3rd edition by Griffiths and Schroeter. Older editions are not guaranteed to have the same content or homework questions. I have an extra copy that you can check out for a few hours. If you are interested in additional references for further reading or alternative presentations, please let me know.

D. Workload

There will be homework assignments offered roughly weekly, with about eight total. These will comprise 60% of your grade, with the lowest grade being dropped, and are due on Mondays by the beginning of class. For exams, there will be an in class midterm and final which will
both be worth 20% of your grade. Your ultimate grade will be based on this composite score and I reserve both the right to adjust this score by 5% to account for improvements over the quarter as well as to curve the grades if needed to produce a distribution that accurately reflects the performance of the class. In general, please let me know as soon as possible about any issues with turning in a homework on time. Late homework will not be accepted without prior arrangement. Total work expected in a week will be 3-4 hours of reading, 3-5 hours on the homework, and 3-4 hours of lecture.

E. Course schedule

The plan is to cover a little bit more than the first three chapters of Griffiths. Class will be primarily lecture based, but questions and discussion are highly encouraged. On average there will be about 90 minutes for each lecture, but occasionally we might use the full 110 minutes (with a break) to make up or catch up.

F. Collaboration Policy

Discussion with classmates on homework is encouraged. However, students must submit their own work. The homework is essential to mastering the subject, thus it is more important to understand the methods than the final answers. Use of online homework solutions and other academic misconduct will not be tolerated. Please see the University Student Conduct Code (http://conduct.uoregon.edu) for more information.

G. Electronics Policy

Humans are terrible multi-taskers and thus, I encourage everybody to limit the use of technology in class to note taking and recording of lectures. Be aware of the distractions other uses have on your attention and those around you.

H. Class Environment

Lets all aim to make the classroom an inclusive environment where all are welcome to discuss and ask questions while maintaining proper respect for all participants.