Course Syllabus

PHYS 415: Quantum Mechanics

Willamette 318
MW 12-1:20 PM, F 12-12:50 PM

Winter 2020

Instructor: Spencer Chang

Office: Willamette Hall 476
Office Hours: In office (Th 10-11am, F after class) or by appointment. Feel free to come chat about the course, my research, or anything that interests you.

E-mail: chang2@uoregon.edu

Teaching Assistant: Nicolae Istrate (nistrate@uoregon.edu)

TA Office Hours: Th 3-4 pm in Huestis 238

Course Description

This course is the second quarter of a three quarter sequence in undergraduate level quantum mechanics.

Learning Outcomes

Through this course, students will learn:

- How to treat spherically symmetric problems in quantum mechanics (in particular the Hydrogen atom), by using spherical coordinates and separation of variables
- How to utilize angular momentum states including spin and how to combine angular momentum states
- How to identify symmetries (e.g. translational, rotational, etc...) in quantum mechanics and determine their implications for conservation and representation of states
- Understand the constraints of the quantum state for particles that are bosons and fermions

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. If you are interested in additional references for further reading or alternative presentations, please let me know.
Workload and Grading Policy

There will be homework assignments offered roughly weekly, with about eight total, including one due during Dead Week, and will in general be due Fridays at 5pm. These will comprise 60% of your grade, with the lowest grade being dropped with the deadline to be determined. 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.

Course schedule

The plan is to cover most of chapters 3-6 of Griffiths. Class will be primarily lecture based, but questions and discussion are highly encouraged.

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.

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.

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.

Course Summary:

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<td>Mon Jan 6, 2020</td>
<td><a href="https://canvas.uoregon.edu/calendar?event_id=135393&amp;include_contexts=course_148904">PHYS 415 Class</a> 12pm to 1:20pm</td>
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