

Physics 318

Quantum Mechanics

(Spring 2023)

Instructor: John Eric Goff

Instructor Information:

- *Office*: Hobbs 412
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- *Phone*: 1.434.544.8856
- *Course Web Page*: http://faculty.lynchburg.edu/goff_j/P318.html
- *Office Hours*:
 - * Monday and Tuesday: 2:00 pm - 6:00 pm
 - * Wednesday and Thursday: 10:00 am - 11:00 am
 - * Appointments are welcome.

Course Meeting Times: 11:00 am - 11:50 am Mondays, Wednesdays, and Fridays in Hobbs 316

Textbook: *Introduction to Quantum Mechanics*, Third Edition (2018), by David J Griffiths and Darrell F Schroeter

Prerequisites: PHYS 302 (Physics IV) and MATH 211 (Calculus III). A course in differential equations (MATH 301) is required as at least a corequisite. A course in linear algebra (MATH 307) is also *highly recommended* as at least a corequisite.

Course Purpose: *Quantum Mechanics* is to be used as four hours toward the “Physics Major.”

Course Description: There are many ways to approach the study of quantum mechanics. The method used in this course is to write the Schrödinger equation down, examine the meaning of the wave function, and then start solving problems. Only after acquiring some familiarity with quantum methods will the focus shift to the more abstract developments of the theory. The text does a nice job with this approach and the course will follow it somewhat closely. The first four chapters will be covered in great detail, followed by parts of the next three.

Course Grade: Your course grade will be determined in the following manner:

- 2 Mid-Term Exams \Rightarrow 20% each for 40% of total grade
- Homework \Rightarrow 37% of total grade
- Problem Session Quizzes \Rightarrow 3% of total grade
- Final Exam \Rightarrow 20% of total grade

Exams: Each of the two mid-term exams will be passed out in class on a Friday and collected at the start of class the following Monday. More details about the format will be given before each exam. Exam #1 is to be handed out on Friday, 24 February 2023. Exam #2 is to be handed out on Friday, 7 April 2023. The Final Exam is set for Friday, 12 May 2023, 8:00 am - 11:00 am in Hobbs 316.

Homework: Homework will be due each Friday. Late homework will *not* be accepted unless there is an *incredibly* good excuse. It is important to hand in homework on time so that you can begin concentrating on the next assignment. Solutions will be handed out once homework has been collected. Because the textbook you are using for this course is likely to be used in a future quantum mechanics course at the University of Lynchburg, you accept homework solutions on the University of Lynchburg Honor System that future students will never see them. Working homework problems is a *very* important part of learning the material. You are encouraged to work together, but the final product you give me *must* be completely your own.

ZERO-TOLERANCE Electronic Device Policy: The use of cell phones, MP3 players, laptops, and all other electronic devices is NOT permitted during class. Texting, tweeting, and other forms of electronic communication are NOT permitted during class. Electronic communication also means checking and reading e-mail and other forms of communication. Simply turn off your cell phone and stow it and any other electronic devices out of sight. Each offense of this policy results in a five-point reduction of your final course average.

Disabilities: University of Lynchburg is committed to providing all students equal access to learning opportunities. The Center for Accessibility and Disability Resources(CADR) works with students who have documented medical, physical, mental health and cognitive diagnoses to make arrangements for appropriate, reasonable accommodations. Accommodations are available as applicable in both live and virtual classroom settings for all terms (Fall, Winter, Spring and Summer). Students registered with CADR who receive approved accommodations are required to provide letters of accommodation each semester to each professor if they wish to use their accommodations. A meeting to discuss accommodations the student wishes to implement in individual courses is strongly suggested. Accommodations are not retroactive and begin when the accommodation letter is provided to faculty. For information requesting accommodations, please visit <http://www.lynchburg.edu/academics/center-for-accessibility-and-disability-resources/intake-and-accommodations/>, or contact Julia Timmons, timmons.j@lynchburg.edu, phone 434.544.8339.

Extra: Our weekly evening problem session takes place each Tuesday in Hobbs 316, 6:00 pm - 8:00 pm. You will take a very short quiz at the start of each problem session.