

# PHYS 402/502: Introduction to Quantum Mechanics (Spring 2022)

Online, Mon+Wed 3:00-4:15 pm

## Course Description

Starting from the experimental basis, this course introduces the principles and postulates of quantum mechanics, and presents the essential theoretical tools for understanding and analyzing quantum phenomena. The subjects include: wavefunctions and Schrodinger equation, Hilbert space and operators, quantum linear harmonic oscillator, angular momentum and spin, Hydrogen atom, perturbation theory, variational principle, WKB approximation, etc.

Prerequisite: PHYS 308

## Course Textbooks

- *Introduction to quantum mechanics* (2<sup>nd</sup> or 3<sup>rd</sup> edition), David J. Griffiths

## Lectures

- Online, using Zoom (please install Zoom app from <https://zoom.us/>)
- Lecture link: <https://gmu.zoom.us/j/95060830633?pwd=dkl1WVlmbEdsWCtVK2VUTIVyTVUwQT09>
- Lecture Zoom info: Meeting ID: 950 6083 0633, Passcode: 960637

## Instructor

- Predrag Nikolic
- Email: [pnikolic@gmu.edu](mailto:pnikolic@gmu.edu)
- Office hours: after class (on Mondays or Wednesdays)

## Grading

- Homework 40%, midterm exam 30%, final exam 30% (of the final score)
- The final letter grade is based on the final score and the overall class performance.

## Homework

- Assigned once a week on Wednesdays. Posted on Blackboard.
- Due at the beginning of the following week's Wednesday class. Collected on Blackboard.
- Solutions will normally be posted at collection times, so no late homework can be accepted.
- Students registered for PHYS 502 will have additional or different homework problems, appropriate for the graduate level. Students registered for PHYS 402 are not required to solve those problems.
- While working in small groups is encouraged, grades will be based on the evidence of original thinking. All steps leading to the final results must be shown and explained for the full credit.

## Exams

- Will be scheduled during regular class time (midterm during the semester, final during the examination period). Exams will be live-proctored via Zoom, delivered and collected on Blackboard.
- Students registered for PHYS 502 will have additional or different exam problems, appropriate for the graduate level. Students registered for PHYS402 are not required to solve those problems.
- The use of literature is not permitted (closed book).
- A calculator may be needed for quantitative problems. However, the calculator must not have the ability to store and display text, formulas, graphs, etc.
- Most problems will be similar to those given in homework assignments, but more original problems are likely to appear in the final exam. The final exam will cover topics from the entire course.
- It is the responsibility of each student to attend classes during scheduled examinations as listed in the syllabus regardless of work or family considerations. Make-up exams will be given only to students with a valid medical excuse and they should contact the instructor as soon as they return to school.