

Physics 321

Quantum Physics I Fall Semester 2011

- Room:* Seaver Hall 109
Time: MW 3:00 - 4:15 PM
- Instructor:* Dr. Gabriele Varieschi
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Office hours: T 3:30 pm - 5:00 pm; F 11:00 am - 12:30 pm; and by appointment.
- Required Text:* **David Griffiths – Introduction to Quantum Mechanics – Pearson Prentice Hall – Second Edition – ISBN 0-13-111892-7**
(Photocopies of other textbook chapters will be provided to students)
- Objectives and Topics:* We will cover several chapters of the book(s) in the following order:
Part I – Preliminaries: Thermal radiation and Planck’s postulate. Photons and particle properties of radiation. De Broglie’s postulate and wavelike properties of particles. Bohr’s model of the atom.
Part II – The wave function and the Schrödinger equation. Time-independent Schroedinger’s equation. Formalism of quantum mechanics and the uncertainty principle. Quantum mechanics in three dimensions and the hydrogen atom.
- Prerequisite or concurrent enrollment: PHYS 206; MATH 245, 250.**
- Learning Outcomes:* Understand the experimental foundations of quantum physics and the basic historical experiments which lead to modern physics at the beginning of the 1900’s. Conceptually understand the theoretical framework of quantum physics and the basic solutions of the Schrödinger’s equation. Be able to solve problems of increasing complexity, dealing with the applications of quantum mechanics. Understand the current status of the field and future challenges.
- Tests:* There will be two tests during the semester. They will all count toward your final grade, so please try not to miss any of them.
- Test Dates:* TBA
- Final Exam:* The final exam is cumulative, equivalent to 2 tests, and will probably be a take-home exam, during the final week of the semester.
- Homework:* Homework assignments will be given, typically one for each chapter of the book(s). Problem sets will be collected, graded, and will count toward the final grade. Solutions to the problems will be reviewed in class, with student participation.

<i>Grading:</i>	Class Attendance & Participation	10 %
	Homework	18 %
	Test 1	18 %
	Test 2	18 %
	Final Exam	36 %

Test Grading (approx.): <50%=F; 50-54%=D; 55-69%=C range; 70-84=B range; >84=A range.

Academic Honesty: Academic dishonesty will be treated as an extremely serious matter, with serious consequences that can range from receiving no credit for assignments/tests to expulsion. It is never permissible to turn in any work that has been copied from another student or copied from a source without properly acknowledging the source. It is your responsibility to make sure that your work meets the standard of academic honesty set forth in the "LMU Honor Code and Process" in the Undergraduate Bulletin 2010-2011.

Syllabus changes: If necessary, this syllabus and its contents are subject to revision; students are responsible for any changes or modifications announced in class.

Have a good semester. Good luck !