

Physics 322

Quantum Physics II Spring Semester 2012

- Room:* Seaver Hall 109
Time: MW 2:30 - 3:45 PM
- Instructor:* Dr. Gabriele Varieschi
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Office hours: M 4:00 pm - 5:00 pm; T 3:30 pm - 5:00 pm; and by appointment.
- Required Text:* **David Griffiths – Introduction to Quantum Mechanics – Pearson Prentice Hall – Second Edition – ISBN 0-13-111892-7**
- Objectives and Topics:* We will continue our analysis of modern Quantum Mechanics covering several chapters of the book in the following order:
Part I – Ch.3: Formalism of quantum mechanics, Hilbert spaces, operators, Dirac notation. Ch. 4: Three-dimensional quantum mechanics. Hydrogen atom, angular momentum and spin. Ch. 5: Identical particles and atoms with many electrons.
Part II – Ch.6: Time-independent perturbation theory. Ch.9: Time-dependent perturbation theory. Ch.12: Quantum Paradoxes.
- Prerequisite: PHYS 321.**
- Learning Outcomes:* Understand the more advanced topics in quantum physics. Conceptually understand the mathematical framework of quantum mechanics and the three-dimensional 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. 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.

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 !