

PHY405: Advanced Quantum Mechanics

Instructor: Professor V. J. Goldman
office: B-137 (Physics) ; telephone 2-9001
office hours: Mon, Wed, Fri 11:00-12:00 and drop by
email: Vladimir.Goldman@StonyBrook.edu

TA: TBD

Text: D. J. Griffiths, *Introduction to Quantum Mechanics*, 2nd edition, Pearson, 2005

Course organization and grading:

- Three lectures per week (P-117, MoWeFr 10:00 - 10:53 am)
- [Homeworks](#) seven difficult HWs will be given, due in class on due date (on paper only)
- Late HW: in B-137 only (slide under the door, if closed), **not** in mailbox, **not** to TA
- Late HW penalty: 20% per day, so that model solutions can be posted next week
- Exams: two Midterms (Fri Oct 2, Mon Nov 9, in class) and Final (Tue, Dec 15, 2:15 - 4:15 pm, 2 hours)
- Exams are open book, can use your own HWs
- Course grade = 30% HW + 15% each Midterm + 40% Final
- There is no provision for doing extra or outside work to improve your grade. The Final exam is comprehensive.

Course outline:

1. Time-independent perturbation theory
2. Variational methods
3. WKB (quasiclassical) approximation
4. Time-dependent perturbation theory
5. The adiabatic theorem
6. Quantum measurement "paradoxes"

Material will be presented primarily in lectures, readings assignments from the text, and homework problems.

Lecture will cover the material to be learned, some important examples, and will direct your study from the text,

however some material will be presented in class that is not in the text.

Thus, you should attend class, pay attention while there, and take notes over the material.

You should plan on 2-3 hours of study and doing problems outside of class for every lecture.

The material in the latter part of the course will be based upon material presented in the first part of the course,

therefore you will have to commit the material to long-term memory.

Working together: Students are encouraged to study in small groups, discuss the material and HW problems. It should be perfectly clear that each person is responsible for completing and submitting the work.

It is NOT acceptable to divide the problems, when one solves problem 1 and the other problem 2.

Exchange of any information between the students during an exam is unacceptable.

Note: If you have a disability that may affect your ability to carry out the assigned course work, you are urged to contact the staff of the Disabled Student Services, Room 128, ECC building. DSS will determine with you what accommodations are necessary and appropriate. All information and documentation of disability is confidential.

http://sb.cc.stonybrook.edu/bulletin/current/policiesandregulations/policies_expectations/min_instructional_student_resp.php