Quantum Mechanics II, Physics 6520
Spring 2019
SAGE 3510, M, R 8:00am-9:50am

instructor: Gyorgy Korniss
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office hours: M, R: 1-2pm

TA: Hunter Belanger belanh@rpi.edu
office hours: T, W: 11:00am-12:00pm HBH (Huntington Lab SC1C28)

pre-requisite: PHYS 6510

course objective: Learning fundamental concepts and developing advanced problem solving skills in quantum mechanics

learning outcomes: Upon successfully completing the course students will demonstrate an ability to apply concepts and theories of Quantum Mechanics in advanced problem solving tasks, as well as the ability to make use of physical principles along with mathematics to describe quantum mechanical phenomena.

text: Sakurai & Napolitano, Modern Quantum Mechanics, Second Edition (Addison-Wesley, 2011);

grading: 35% Homeworks; 5% Activities; 60% Exams (30%, 30%).
Test I: TBA (in-class, but scheduled outside regular class time)
Test II: TBA (take-home)

Letter Grades:
A: 92-100%, A-: 90-91.999%; B+: 87-89.999%, B: 82-86.999%, B-: 80-81.999%;
C+: 77-79.999%, C: 72-76.999%, C-: 70-71.999%; F: 0-69.999%

(I reserve the right to move the cut-offs to be more lenient.)

Graded material: It is your responsibility to pick up all returned and graded HWs, Activities, and Exams, and to bring any discrepancies/contests to my attention. No contests will be considered after a week following the return of the material. Further, you must keep all your graded HWs and exams until the end of the semester in case there are any clerical errors in entering your grades into the spreadsheet.

Make-up exams: There are no make-up exams.
Lectures (quizzes/in-class activities):
I do not take attendance roll in the lectures. But there will be a number of short Activities/problems handed out unannounced which counts 5% of your overall course total. Besides, I think the most important source for the covered material is the lecture, your own notes, so I think it is extremely important that you show up, listen, take notes, and ask questions.

Homework assignments:
Regular homework assignments are taken from the textbook and will be posted on the course website on the lecture/HW schedule. Homework is due on the date indicated, at the start of class at 8am. Late homework will not be accepted without prior approval from the instructor.

Covered material:
Tensor Operators; Symmetry in Quantum Mechanics; Time-Independent Perturbation Theory; Time-Dependent Potentials and Time-Dependent Perturbation Theory; Scattering Theory: Scattering as a Time-Dependent Perturbation, Born Approximation, Partial Waves; Identical Particles; Relativistic Quantum Mechanics

Academic Integrity Policy:
Academic integrity is one of the cornerstones of RPI. Student-teacher relationships are built on trust. For example, students must trust that teachers have made appropriate decisions about the structure and content of the courses they teach, and teachers must trust that the assignments that students turn in are their own. Acts that violate this trust undermine the educational process. The Rensselaer Handbook of Student Rights and Responsibilities and The Graduate Student Supplement define various forms of Academic Dishonesty and you should make yourself familiar with these.

Students taking courses at RPI have a right to expect that their work will be evaluated fairly with respect to other students. They have a right to expect that other students will not attempt to enhance their own grades or the grades of their friends by cheating. Professors have a right to expect that their students are honest and submit work reflecting their own efforts. In an atmosphere of academic integrity, students and professors are on the same team trying to achieve the same learning objectives.

Collaboration and discussion are allowed and encouraged in the homeworks and in-class activities. However, you must individually write-up your own solution, as the results of synthesizing discussions with others, and not merely copying others’ solutions. On exams, you’re on your own and not allowed to discuss anything with your classmates (regardless whether in-class or take-home). Thus, don’t copy someone else’s homework, in-class activities, and don’t cheat on exams. If I suspect you of either, I’ll ask for an explanation. If your explanation is unsatisfactory, you’ll be given a grade of 0 (zero) and reported to the Dean of Students. If this happens more than once, you will be given an F for the course, and the entire matter will be forwarded to the Dean of Students.