Quantum Mechanics II   (Phys 661)

Syllabus

Spring 2014

Monday and Wednesday 10:00-11:15 pm, Faraday 237

Instructor

Name: Roland Winkler, Associate Professor
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Phone: (815) 753-6475
Office Hours: Monday and Wednesday, 11:15–noon, 1:30–4:30pm

Web Site

http://webcourses.niu.edu   (Blackboard)

Course Description

Quantum Mechanics II: Identical particles, exclusion principle and exchange effects; interaction of electromagnetic radiation with matter; introduction to scattering theory, partial wave analysis, and Born approximation; simple many-body theory in the Hartree-Fock framework. *(Graduate Catalog)*

Prerequisites   Phys 660 or consent of department.

Credits   3

Textbook

J. J. Sakurai and J. J. Napolitano, *Modern Quantum Mechanics* (2nd edition), Addison Wesley (2010)

Class Participation

Students are strongly encouraged to participate in class discussion and ask questions during class. Full attendance at all class meetings is expected. Tardiness or leaving early must be avoided in order for the class to be productive for all.

In-class electronic communications

I ask that you do not take phone calls, text, email, update your status, or tweet during lectures.

Reading assignments

Reading assignments are given for each class one week in advance.

Homework

There will be weekly homework assignments. Written assignments must be handed in at the beginning of class on the due date. If for some reason you cannot attend class on the due date, you may put your paper into my mailbox *before it is due.* To avoid misunderstandings, ask one of the ladies working in the physics office to time-stamp your paper.

Students may discuss homework concepts with each other. However, each student must submit his or her own work, i.e., he or she must formulate the results using his or her own words. The same rule

applies when a book or other sources are used as a "source of inspiration". Do not turn in anything that you have copied, or anything that you do not truly understand.

Exams

The exam date for the midterm exam is given in the course calendar listed below and will not be changed. Only material covered up to the exam date will be included. The final exam is comprehensive, but will be weighted towards the material covered during the second half of the semester. Students may use in the exams one letter-size sheet of paper with notes in their own original handwriting. No photocopies, printed documents, or any other materials are allowed.

Grading

Homework assignments, midterm exam, and the final exam will each be given point values and the final course grade will be based on the sum of points earned.

Homework:	40%	weekly
Midterm Exam:	25%	Wednesday, Mar 19, 10:00–11:15pm
Comprehensive Final Exam:	35%	Monday, May 5, 10:00–11:50am

To pass this course, you must score at least 50% on the homework, at least 35% on the final exam, and at least 50% overall.

Academic Integrity

I expect students to maintain the highest standards in academic work. I do not tolerate academic dishonesty. Students submitting copies of other students' solutions will receive zero credit for that homework set. Students cheating on exams will receive zero credit for that exam. Cheating on the final exam will result in a grade of F for the course. Furthermore, students suspected of cheating on an exam will be turned in to the University Judicial Office.

Incomplete grades

Incompletes will only be given under extraordinary circumstances such as extended illness or call-up to active military duty.

Receiving assistance

Students are urged to contact me should they have questions concerning course materials and procedures. If you have a disability or any other special circumstance that may have some impact on your course work and for which you may require accommodations, please contact me early in the semester so that arrangements can be made with the Disability Resource Center (DRC) http://niu.edu/disability/.

Tentative Course Calendar

Dates	Chapter
Jan 13 – Feb 12	Approximation Methods
Feb 17 – Mar 5	Scattering Theory
Mar 10 – 16	NIU Spring Break
Mar 17 – Apr 2	Symmetry in Quantum Mechanics
Mar 19	Midterm Exam
Apr 7 – Apr 21	Identical particles
Apr 23 – Apr 30	Relativistic Quantum Mechanics
May 5: 10:00-11:50pm	Final Exam