

PHYS 3354

QUANTUM MECHANICS II

Spring 2009

Lecture CRN: 23425 3:00pm–3:50pm MWF LSC 159

Instructor

Scott Austin

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Office hours: M T W Th 12pm–1pm, MWF 4pm–5pm

Course Description

Continuation of PHYS 3353. Approximation methods, perturbation theory, and applications to quantum systems. Lecture. Prerequisite: PHYS 3353. Spring, odd years.

Textbook(s)

Required textbook: Shankar “Principles of Quantum Mechanics”, 2nd ed.

This is the book we will be following and from which I will be assigning some problems. Most quantum textbooks have certain strengths and weaknesses, Therefore for your own personal library of reference text books I would suggest purchasing one or more of the following.

Some suggested reference texts (in no particular order):

- Scherrer “Quantum Mechanics an Accessible Introduction”
- Griffiths “Introduction to Quantum Mechanics”
- Shankar “Principle of Quantum Mechanics”
- Sakurai “Modern Quantum Mechanics”
- Zettili “Quantum Mechanics Concepts and Applications”
- Morrison “Understanding Quantum Mechanics a Users Manual” (covers topics from QM I)
- Ballentine “Quantum Mechanics a Modern Development

For those who want more on the paradoxes and interpretations of QM here are a couple of possible books of interest:

- Greenstein and Zajonc “The Quantum Challenge”
- Griffiths “Consistent Quantum Theory”

Course Format

Problem Portfolios

You will create a portfolio of the solutions to the assigned problems.

Workshop

Class time will be spent on short lectures with the majority of class time spent actively working problems both in groups and individually. Attendance and participation during class time will count for 10% of your overall grade.

Assessment

- **Portfolio:** Your portfolio of problem solutions will be submitted periodically for review. The review may include the explicit grading of certain problems and/or more cursory checks of the work you have done. 15%
- **Quizzes** will be given at a rate of about one a week and will account for 25% of your grade.
- **Semester Exams:** Three exams will be given during the semester and will be 25% of your grade.
- **Final Exam (Friday May 8 1pm–3pm):** A comprehensive final exam will be worth 25% of your grade.

Grades

Starting Grade Scale

$90\% \leq A < 100\%$

$80\% \leq B < 90\%$

$70\% \leq C < 80\%$

$60\% \leq D < 70\%$

$0\% \leq F < 60\%$

Absences

All quizzes and exams must be done during the scheduled times.

Consideration will be given for the following at the convenience of the instructor:

- Any student who is required to participate in off-campus, university-sponsored activities such as field trips, musical performances, judging teams, intercollegiate athletic events, etc. must obtain a letter from the faculty or staff member supervising the off-campus activity. The letter must contain specific information concerning the activity and date, be signed by the supervising faculty or staff member, and be submitted by the student to me at least one week in advance.
- Students that must miss a class because of illness, personal crises, mandated court appearances, parental responsibilities, and the like are required to submit a written explanation of the absence at least one week in advance. For emergency situations, students are required to call or e-mail me immediately followed by a written explanation.
- If one cannot come to class because of inclement weather one must call or e-mail me immediately.
- Students who attempt to gain advantage through abuse of this policy (e.g., by providing an instructor with false information) will receive disciplinary action and will fail this course.

Academic Misconduct

Academic misconduct include cheating, falsification, multiple submission, plagiarism, abuse of academic materials, and complicity or misconduct in research; the definition of academic misconduct is stated in the Student Handbook. Any student guilty of an act of academic misconduct will be subjected to one or more of the following penalties as outlined in the Student Handbook: 1. The students' grade in the course or on the examination or assignment affected by the misconduct may be reduced to an extent, including reduction to failure. 2. The student may be placed on probation or suspended from the university for a specific period of time. 3. The student may be expelled from the university. Expect to receive the maximum penalty for any academic misconduct.

Misc Policies

All other policies not explicitly covered in the syllabus can be found in the Student Handbook. For example, academic policies in general can be found beginning on page 26 and the sexual harassment policy can be found on page 93.

Americans with Disabilities Act

UCA adheres to the requirements of the Americans with Disabilities Act. If you need accommodation under this Act contact the UCA Office of Disability Services at 450-3135.