

PHYSICS 460/560 - Quantum Physics - Fall 2015

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Office Hours: M-W-F 11:00 - 11:50

nicadd.niu.edu/~hedin/460/460.html

textbook:

Quantum Physics

3rd Edition

by Stephen Gasiorowicz

additional textbooks:

Quantum Physics of Atoms, Molecules, Solids, Nuclei, and Particles

by Robert Eisberg and Robert Resnick. This has more

examples than Gasiorowicz but less

"mathematical foundations" of QM, and is a junior-level book.

Introduction to Quantum Mechanics by David

Griffiths and Introductory Quantum Mechanics by Richard Liboff.

You may also want to utilize these books though there is a lot of overlap in content with Gasiorowicz.

Chapter	Approx. number of days	Problems (paren:just look at)
Relativity and Linear Algebra	2	handout
1: Early Quantum Physics	3	5,9,10,14
2: Waves and Schrodinger Equation	3	16,17,18,19 (12,13,14,22)
3: Eigenvalues and eigenfunction	2	7,9,14,16(use j) (1,3,10,12,17)
4: 1D potentials	4	7,12 (1,2,3,6)
5: General structure of Wave Mechanics	1	17,18 (15,16)
6: Operator methods in QM	3	10,15(just n=1,2) (3,11)
7: Angular Momentum	3	3,7,10 (4,5,6)
8: 3D and H atom	4	3,4,10 (1,2)
9: Matrix Representations	1	6
10: Spin (skip 10-3)	3	1,4,6(use answer from 1),14 (5)
11: Time-independent perturbation theory	2	1,11 (just first-order) (3,7,13a)

12: The real H atom	2	1,2
13: Many particle systems	2	4,7
14: Atoms and molecules	3	1,2 plus handout
15: Time-dependent perturbation theory	2	(4)
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17: Radiative decays probably not have time - just 17.2,17.3		

Test 1: Ch. 1-5	Oct. ?
Test 2: Ch. Ch. 6-9	Nov. ?
Test 3: Ch. Ch. 10-14/15	Dec. ? (during finals week)

All tests are 50 minutes long and worth 100 points. You may have a normal size piece of paper with notes on 1 side which you will turn in with the exam. The problems are worth 100 points total. They are due the dates listed; anything late will be marked down. A solution set is available in the main office after the date they are due. No minus grades will be given and plus grades will be decided on at the end of the class. The grading scale will be no higher than

- A = 320 points
- B = 270 points
- C = 220 points
- D = 170 points
- F = 140 points