QUANTUM MECHANICS II

PHYS 911
Fall 2010

Instructor, Office: Uwe Thumm, Cardwell Hall, Room 212
Class: Tuesday, Thursday 2:30-3:45, Cardwell Hall, room 146
Office hours: by appointment
e-mail, Web page: thumm@phys.ksu.edu, www.phys.ksu.edu/personal/thumm

Prerequisites: Working knowledge of

- Classical Mechanics (e.g., PHYS 522)
- Classical Electrodynamics (e.g., PHYS 532)
- Mathematical Methods of Physics (e.g., PHYS 801)
- Quantum Mechanics I (e.g., PHYS 811)

Text book: "Quantum Mechanics", E. Merzbacher, 3rd ed., John Wiley & Sons (1998)

Supplementary books (not required):

Undergraduate level:

- Introduction to Quantum Mechanics, D. J. Griffiths
- Quantum Physics: Atoms, Molecules, Solids, Nuclei, and Particles, R. Eisberg and R. Resnick

Graduate level:

- Quantum Mechanics, C. Cohen-Tannoudji, B. Diu, and F. Laloe
- Quantum Mechanics, A. Messiah
- Principles of Quantum Mechanics, R. Shanker
- Quantum Mechanics: Nonrelativistic Theory, L. D. Landau and E. M. Lifshitz
- Feynman Lectures in Physics – Vol. III, R. Feynman
- Quantum Mechanics: Fundamentals, K. Gottfried and T.-M. Yan
- Foundations of Quantum Mech.: From Photons to Quantum Computers, R. Blümel

Mathematical and computational:

- Mathematical Methods for Physicists, G. B. Arfken and H. J. Weber
- Tables of Integrals, Series, and Products, L. S. Gradsheyn and I. M. Ryzhik
- Handbook of Mathematical Functions, A. Abramowitz and I. A. Stegun
- Angular Momentum: Understanding Spatial Aspects in Chemistry and Physics, R. N. Zare
- Numerical Recipes: The Art of Scientific Computing, W. H. Press et al.

More advanced and specialized:

- Physics of Atoms and Molecules, B. H. Bransden and C. J. Joachain
- The Theory of Atomic Structure and Spectra, R. D. Cowan
- Theoretical Atomic Physics, H. Friedrich
- Solid State Physics, N. W. Ashcroft and N. D. Mermin
- Introductory Quantum Optics, C. C. Gerry and P. Knight
- Quantum Optics, D. F. Walls and G. J. Milburn
- Elements of Advanced Quantum Theory, J. M. Ziman

Homework: You are encouraged to discuss strategies for solving homework assignments in small groups. However, I require that you write and return to me at the assigned due dates your **own detailed solutions**. You will receive no credit for solutions that you have copied. In order to obtain full credit, I also request that you present correct answers in a professional, well organized, and readable manner. In addition to the "for credit" homework assignments, I will frequently ask you to complete simple calculations that we don't have time for in class. It is important that you carefully "fill in" these gaps when reviewing your lecture notes. This is done most efficiently **before** the subsequent lecture.

(over)

Credit:	Points
Exam 1	200
Exam 2	200
Final Exam	300
Homework	300
Total	1000

Grades:	Points
A	more than 849
B	700-849
C	550-699
D	450-549
F	less than 450

University policy requires that the following statements be added to this syllabus:

Disabilities: If you have any condition such as a physical or learning disability, which will make it difficult for you to carry out the work as I have outlined it or which will require academic accommodations, please notify me and contact the Disabled Students Office (Holton 202), in the first two weeks of the course.

Plagiarism and cheating are serious offenses and may be punished by failure on the exam, paper or project; failure in the course; and/or expulsion from the University. For more information refer to the "Academic Dishonesty" policy in K-State Undergraduate Catalog and the Undergraduate Honor System Policy on the Provost's web page at www.ksu.edu/honor.

Copyright: Students are prohibited from selling (or being paid from taking) notes during this course to or by any person or commercial firm without the express written permission of the professor teaching this course.