QUANTUM MECHANICS II (PHYS 5302-001)
Spring 2010

Instructor: Igor Volobouev, i.volobouev@ttu.edu
Office: SCI 13, ph. 806-742-4572
Office Hours: TTH 14:00 – 15:00, by appointment, and open door
Meetings: TTH 12:30 – 13:50 in SCI 112

Objectives: Understand conceptual foundations of Quantum Mechanics (QM), mathematical techniques, and key results. Acquire the ability to solve problems and to comprehend QM applications at the research level. Prepare for subsequent self-study of advanced QM material as you need it.

Coverage: Density matrix formalism
Path integral formulation of Quantum Mechanics
Systems of identical particles
Time-independent perturbation theory
Time-dependent perturbation theory, interaction of atoms with radiation
Scattering Theory
Modern QM topics (as time permits)
Research topics selected by the students

Homework: Problem sets will be assigned on a regular basis and will be discussed in class after the due date. You are welcome to work in small groups. Homeworks will not be collected or graded, but you must understand the problems assigned and be able to work them out: they are an important part of the tests! You must have understood the homework in order to be able to do well on the tests.

Tests: There will be three in-class midterm tests (time TBA). The tests will include conceptual and qualitative questions discussed during the class sessions and in the book as well as problems picked from the homework (or similar).

Final Project: I will expect a presentation to the class (~30 min) on an interesting modern quantum mechanics research topic or problem of your choice (if you can, pick a subject related to your thesis research). You will need to get your project topic approved on or before March 11.
Grading Policy: The following weighting scheme will be used:

10% class participation
50% in-class tests
40% final project

The following serves as an approximate grade scale:

100-80: A  
79-65: B  
64-50: C  
49-40: D  
< 40: F


In order to succeed in this course, you must read the assigned text before coming to lecture. The importance of this can not be overemphasized.


Feedback: Please let me know what you think about the course. Frequent, honest, and constructive feedback will be highly appreciated. It is the best way to teach your instructor how to teach the course and to enhance your own learning experience.

ADA Statement: Any student who, because of a disability, may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided.