QUANTUM MECHANICS I (PHYS 5301-001)  
Fall 2010

Instructor: Igor Volobouev, i.volobouev@ttu.edu  
Office: SCI 13, ph. 806-742-4572  
Office Hours: Tues, Wed, Thurs 14:00-15:00, by appointment, and open door  
Meetings: TTH 9:30 – 10:50 in SCI 112

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

Coverage: Mathematical apparatus of QM (Dirac notation, Hilbert space, linear operators, hermiticity, unitarity)  
QM postulates  
Problems in 1 dimension (free particle, simple potentials, harmonic oscillator, tunneling, WKB approximation)  
Problems in 3 dimensions, angular momentum, hydrogen atom  
Spin, addition of angular momenta

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) and a comprehensive final exam. The tests will include conceptual and qualitative questions discussed during the lectures and in the book as well as problems picked from the homework (or similar).

Grading Policy: The following weighting scheme will be used:
   10% class participation  
   60% in-class tests  
   30% final exam

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 the 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. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.