KOÇ UNIVERSITY  
College of Arts and Sciences  
Department of Physics  

Course: PHYS401 Quantum Mechanics I  
Credits: 3  
Semester: Fall 2003  
Instructor: Professor Tekin Dereli  
  Office: Science 159, Phone: 1510, E.mail: tdereli@ku.edu.tr  
  Office hours: By appointment  
  Lecture hours: Mondays and Wednesdays, 14.00-15.15, Scie 129  


Textbook: Introduction to Quantum Mechanics D.J.Griﬃths (Prentice-Hall, 1994)  


Grading: Homework (8 sets) 16%  
  1. Midterm 24%, November 5, 2003  

Remember:  
  1. Attendance will be taken in the classes. Any student who misses more than 9 lectures with or without excuse automatically fails.  
  2. In the exams no exchange of information among students should take place. You are expected to hand in your own work in all the exams and HW assignments.  
  3. For the homework you may discuss the problems, consult your teachers and use the library and internet. However, the submitted work must be totally yours. You must not submit work done in groups, transfer ﬁles or copy from a book.  
  4. Late homework is going to be accepted but you loose half the grade.
Course plan:


Week:2 Gaussian wave packet. Momentum operator. Uncertainty relations.

Week:3 Stationary state solutions of 1-dimensional potential problems. Infinite square well. HW1.

Week:4 Simple harmonic oscillator. Free particles. Plane wave solutions. HW1

Week:5 Holiday

Week:6 Fourier transforms. Momentum space. (1. Midterm)


Week:8 Linear vector spaces. Vectors and matrices. Orthonormal bases. Bases change as a linear transformation. HW2

Week:9 Holiday

Week:10 Eigenvalue problems. Matrix diagonalization. HW3


Week:12 Postulates of quantum mechanics. Measurement hypothesis. Uncertainty products. HW4

Week:13 3-dimensional Schrödinger equation. Separation of variables in centrally symmetric potentials.

Week:14 Hydrogen atom problem.

Week:15 Solutions of the angular equation. Radial equation. Radial probability distribution functions. HW5