

THE UNIVERSITY OF TEXAS AT EL PASO
COLLEGE OF SCIENCE
DEPARTMENT OF PHYSICS

- Course #, Title and credits: 12762, PHYS 4355, **Introduction to Quantum Mechanics**, 3 credit hours
Term: Fall 2018
- Course Meetings & Location: M W 9:00-10:20AM, UGLC Room 336
- Prerequisite Courses: MATH 2326, PHYS 3325 or equivalent or consent of the instructor.
- Instructor and coordinates: Ramon Ravelo, PSCI 223E, 915-747-5620, ravelo@utep.edu
Office Hrs: M: 1:00-2:00; W: 1:00-3:00 PM
- Textbook(s), Materials: Suggested: *Quantum Physics* by Stephen Gasiorowicz, 3rd edition (John Wiley & Sons 2003)
Website: <http://www.wiley.com/college/gasiorowicz>
Suggested: Introduction to Quantum Mechanics by David J Griffiths, 2nd edition (Pearson Prentice Hall, 2005), a more elementary treatment of QM than Gasiorowicz but good for review. Schaum's Outline of Theory and Problems of Quantum Mechanics by Yoav Peleg, Reuven Phini, Eliahu Zaarur and Reuven Pnini, (Schaum's Outline Series, McGraw-Hill). It reviews fundamentals and has many solved problems.
- Course Objectives (Learning Outcomes): This course offers an introduction to the Quantum Mechanics "machinery" for physics and engineering majors. It will cover the Schrödinger equation in one and three dimensions, the Hydrogen atom, angular momentum and spin. For more detailed on topics to be covered, see course schedule below.
- Course Activities/Assignments: Class will be composed of two 80 minutes lectures. There will be weekly homework assignments and in class quizzes.
- Assessment of Course Objectives: Assessment will be through weekly homework, quizzes and several exams.
- Grading Policy: Grade will be determined based on 2 midterm exams (50%), one final exam (30%) and weekly homework and quizzes (20%).
- Make-up Policy: **Exams.** Make up exams are given only on extraordinary cases of severe illnesses or emergencies. In all cases, documentation will be required. There will be no make-up quizzes.
- Attendance Policy: Attendance is not taken into account for the grade.
- Academic Integrity Policy: Any student who commits an act of academic dishonesty is subject to discipline. Academic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, and any act designed to give unfair advantage to a student or the attempt to commit such acts. Proven violations of the detailed regulations, as printed in the Handbook of Operating Procedures, and available on the homepage of the Dean of Students at www.utep.edu/dos, may result in sanctions ranging from disciplinary probation, to a failing grade on the work in question, to a failing grade in the course, to suspension or dismissal, among others.
- Civility Statement: During class, please:
— Turn off cell phones and any devices, which might disturb class.

Disability Statement: If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

Military Statement: Students being called for military duties need to contact the instructor as soon as possible.

Course Schedule: **See table below (Content keys from Gasiorowicz)**

Week	Content		Observations
Aug 27– 31	Ch 1	Introduction to Quantum Mechanics	
Sep 3 – 7	Ch 2: § 1-4	The Schrödinger equation	Sep 3: Labor day University Closed
Sep 10 – 14	Ch 2: § 5-7	Probability interpretation, density and normalization	Sep 12: Census day
Sep 17 – 21	Ch 3: § 1-4	The Schrödinger equation in one dimension; Eigenvalues, Eigenfunctions	
Sep 24 – 28		Midterm I, Wed Sep 26	
Oct 1 – 5	Ch.4: § 1-4	Applications in one dimension	
Oct 8 – 12	Ch.4: § 5-7	Applications in one dimension	
Oct 15 – 19	Ch 5	General Structure of Wave Mechanics	
Oct 22 – 26	Ch 6	Operators, Function Spaces Hilbert Space	
Oct 29 – Nov 2		Midterm II, Wed Oct 31	Nov 2: Course drop deadline No automatic “W” after this day
Nov 5 – 9	Ch 7: § 1-3	Angular Momentum	
Nov 12 – 16	Ch 8: § 1	Schrödinger Equation in Three Dimensions	
Nov 19 – 23	Ch 8: § 2-3	Hydrogen Atom	Nov 22-23 Thanksgiving holidays
Nov 26 – 30	Ch 9: § 1-2	Angular Momentum, Matrix Representation of Operators	
Dec 3 – 7	Ch 10: § 1-4	Spin	Dec 6: Last day of classes Dec 7: dead day
Dec 10 – 14		FINAL EXAM (Comprehensive) Wed Dec 12, 10:00AM-12:45PM UGLC 336	Final Exams