

Syllabus

Textbook: R. L. Liboff, *Introductory Quantum Mechanics*.
Reference textbook: D. J. Griffiths, *Introduction to Quantum Mechanics*
 Class Time and Location: T, TH: 11:00 - 12:50 AM (MT); CB 110
 Course Instructor: Dr. A. G. Petukhov
 Office: 223 EEP
 Office Hours: T, TH: 3:00-5:00 PM (MT) or by appointment
 Phone: 394-2364
 E-mail/Web: Andre.Petukhov@sdsmt.edu / <http://odessa.phy.sdsmt.edu/~andre>

Note: Students with special needs or requiring special accommodations should contact the instructor, Dr. A. G. Petukhov, at 394-2364 and/or the campus ADA coordinator, Jollie McCoy, at 394-1924 at the **earliest** opportunity.

The purpose of this course: is to present introductory topics in quantum mechanics with further application to atomic, molecular, nuclear, solid-state physics, and nanotechnology. The course intention is to give students working knowledge of the most widely used concepts and methods of quantum physics.

The expected outcomes of this course: Students successfully completing this course will develop a sound understanding of quantum-mechanical concepts and mastery in elementary quantum-mechanical problems.

Grading Scale: *

3 2-Hour Exams	20 % each	A	> 90 %
Homework/Quiz	20 %	B	80% - 90 %
Final Exam	20 %	C	65% - 80%
		D	50% - 65%
		F	< 50%

*Subject to minor changes

Tentative Lecture Topic Schedule

Week of	Topics
1/07	Introductory notes
1/14	Historical review
1/21	Postulates of quantum mechanics. Operators, eigenfunctions, eigenvalues
1/28	Superposition principle and compatible observables
2/04	One-dimensional problems
2/11	One-dimensional problems
2/18	The WKB approximation, Exam #1
2/25	Angular momentum
3/04	Spring break
3/11	Problems in three dimensions
3/18	Problems in three dimensions, Exam #2
3/25	Elements of matrix mechanics
4/01	The spin
4/08	The spin
4/15	Application to atomic, molecular, and condensed-matter physics
4/22	Application to nanotechnology and information processing, Exam #3
4/29	Final examination