

QUANTUM MECHANICS I

3 credits

Bulletin description:

Operators, one-dimensional wells and barriers, Schroedinger equation, uncertainty, duality, Born interpretation, unstable states, bosons and fermions, central force problems, angular momentum, spin. Prereq: PHYS 350, MATH 266.

Instructor: Alexander Wagner
 South Engineering 210
 231-9582
 Alexander.Wagner@ndsu.edu
https://www.ndsu.edu/physics/people/faculty_short/alexander_wagner/

Meetings: 9:30-10:45 Tuesday & Thursday South Engineering 221

Office Hours: Wednesday 11am-12 noon

Text: D.J. Griffiths, *Introduction to Quantum Mechanics*,
 Second Edition, Pearson/Prentice Hall, 2005

Also: Messiah, *Quantum Mechanics* for reference.

Topics: The wave function
 Time-independent Schrödinger equation
 Formalism
 Quantum Mechanics in three dimensions
 Identical particles

Extra requirements for Graduates: Graduate students will be performing an independent research project.

Grad. Proj.: Projects will be assigned in the sixth week of class. A paper on the project's results is due two weeks before the end of classes. A presentation on your project will be given in the last week of classes.

Grading 485: Problem sets (40%)
 Three exams (40%)
 Final Exam (May 8, 1-3pm) (20%)

Grading 685: Problem sets (30%)
 Three exams (30%)
 Final Exam (May 8, 1-3pm) (20%)
 Project (for graduates) (20%)
 A:90% – 100 %; B:80% – 90 %; C:70% – 80 %; D:50% – 70 %; F:0% – 50 %

Grading boundaries may be shifted in your favour at the end of class. *Any students with disabilities who need accomodation in this course are encouraged to speak with the instructor as soon as possible to make appropriate arrangements.*