**PHY 632: Quantum Mechanics II (Winter 2020)**

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**Course home page:**

http://atomoptics-nas.uoregon.edu/~dsteck/teaching/20winter/phys632

**Schedule:** TTh 10-11:50a, 318 Willamette  
**Course reference number:** 25100  
**Credits:** 4  
**Prerequisites:** none

**Links:** news, course notes, homework sets and keys.

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**Course overview**

This course is a more-or-less standard introduction to quantum mechanics at the graduate level, one of the core components of your Ph.D. studies. This is the second of a 3-quarter sequence.

**Text:**

You don't need to purchase a textbook for this course. The main reference for this course will be online notes posted [here](#).

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**Grades**
Grades for the course will be based on homework, a midterm exam, and a final exam (like the first term). The relative weights will be as follows:

- Homework: 30%
- Midterm exam: 30%
- Final exam: 40%

**Homework:** about 6-8 problem sets will be assigned during the term.

**Midterm exam:** The midterm exam will be held in class on Thursday, 13 February 2019 (during the sixth week of class).

**Final exam:** The final exam is scheduled for Monday, March 16, 8-10a(!) in 318 Willamette.

**Pass/fail grading option:** Since this is a core graduate course, you should take the graded option.

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**Syllabus**

This is a tentative list of topics we will cover in this and the following course(s) in the sequence. Note that it is likely we won't get through all of this in one term.

1. Harmonic oscillator (finishing up)
2. Ehrenfest theorem
3. Angular momentum, spin, rotations
4. Radial potentials, hydrogen atom
5. Time-independent perturbation theory
6. Variational method
7. Entanglement, Bell theorem
8. Time-dependent perturbation theory
9. Fermi Golden rule