

Physics 550 - Atomic Physics

Autumn 2018

- Instructor: Subhadeep Gupta
- Office: B428 Physics & Astronomy Building (616-9649), deepg@uw.edu
- Lectures: M W 9:30-10:50 am, B101 Physics & Astronomy Building
- Office Hours: M W 10:50-11:30 am or by appointment (just send an email)
- Text (reco): *Atomic Physics* by Foot and *Atomic Physics* by Budker, Kimball, & DeMille
These will be complemented by additional notes and handouts.
- Homework: HW problems will be assigned in lecture each week.
A portion of each week's HW assignment will be graded.
- Presentation and Paper: You are required to make a short 5 min presentation and write a 4-page (or longer) paper in Physical Review format on an atomic physics topic chosen in consultation with the instructor(see schedule on reverse).
- Course grade: Based on the homework sets (2/3) and the paper (1/3).
- Course Website: <http://faculty.washington.edu/deepg/phys550/>

If you would like to request academic accommodations due to a disability, please contact Disabled Student Services, 448 Schmitz, 543-8924 (V/TDD). If you have a letter from Disabled Student Services indicating you have a disability that requires academic accommodations, please present the letter to me (the instructor) so we can discuss the accommodations you might need for class.

Course Schedule

Date	Topic	Foot Text
Sep 26-Oct 3	Hydrogen atom, fine structure, helium atom	Ch. 1-3
Oct 8, 10	Central-field, alkali atoms, LS coupling	Ch. 4 & 5
Oct 15, 17	Zeeman and hyperfine structure, interaction with radiation	Ch. 6 & 7
Oct 22, 24	Doppler-free laser spectroscopy, Laser cooling and trapping	Ch. 8 & 9
Oct 29, 31	BEC and Degenerate Fermi gases	Ch. 10 & handouts
Nov 5, 7	Two Atoms: Collisions and Molecules	handouts
Nov 14	Optical Traps and Lattices (No lecture Nov 12, Veteran's Day observed)	Ch.9 & handouts
Nov 19, 21	Atomic Interferometry, Ion Traps	Ch. 11, 12 & handouts
Nov 26, 28	Brief Student Presentations, Additional topics TBD	handouts
Dec 3, 5	Additional Topics TBD	handouts
Dec 7	Friday 5pm deadline for final paper (5pm)	