Physics 581 Class Schedule – Winter 2011 (Revised, Feb 28 version)

	Monday	Tuesday	Wednesday	Thursday	Friday
January	3	4 Start of classes	5 Lecture 1 Ch 1: Periodic arrays of atoms; Fundamental types of lattices	6	7 Lecture 2 Ch 1: Types of latt., cont.; index systems; simple structures **HW 1 assigned**
	10 Lecture 3 Ch 1: Simple structures, cont.; direct imaging; nonideal structures; crystal structure data	11	12 Lecture 4 Ch 2: Diffraction of waves by crystals	13	14 Lecture 5 Ch 2: Scattered wave amplitude **HW 1 due**
	17 **MLK Day Holiday**	18 Add/drop deadline	19 Lecture 6 Ch 2: Fourier analysis of basis **HW 2 assigned**	20	21 Lecture 7 Ch 2: Brillouin zones
	24 Lecture 8 Ch 3: Crystals of inert gases	25	26 Lecture 9 Ch 3: Ionic; covalent; metals; hydrogen bonds; atomic radii **HW 2 due**	27	28 Lecture 10 Ch 3: Analysis of elastic strains **HW 3 assigned**
February	31 Lecture 11 Ch 3: Elastic compliance and stiffness constants	1	2 Lecture 12 Ch 3: Elastic waves in cubic crystals	3	4 Lecture 13 Ch 4: Vibrations of crystals with monatomic basis
	7 Lecture 14 Ch 4: Two atoms per primitive basis **HW 3 due**	8	9 Lecture 15 Ch 4: Quantization of elastic waves; phonon momentum **HW 4 assigned**	10	11 Lecture 16 Ch 4: Inelastic scattering by phonons
	14 Lecture 17 Ch 5: Phonon heat capacity: density of states	15	16 Lecture 18 Ch 5: Phonon heat capacity: Debye model **HW 4 due; Begin Exam 1**	17	18 Lecture 19 Ch 5: Phonon heat capacity: Einstein model; anharm. crystal interactions; thermal cond. **HW 5 assigned**
	21 **Presidents Day Holiday**	22 Monday Instruction Lecture 20 Ch 5: Thermal cond., cont.; Ch 6: Energy levels in 1D	23 Lecture 21 Ch 6: Effect of temperature on the Fermi-Dirac distribution; Free electron gas in 3D **End Exam 1**	24	25 Lecture 22 Ch 6: Free electron gas in 3D, cont.; Heat capacity of the electron gas
March	28 Lecture 23 Ch 6: Electrical cond. & Ohm's law; Thermal cond. of metals **HW 5 due**	1	2 Lecture 24 Ch 6: Motion in magnetic fields; Ch 7 intro: Quantum review **HW 6 assigned**	3	4 Lecture 25 Ch 7: Bloch functions
	7 Lecture 26 Guest Lecturer (Colton out of town)	8	9 Lecture 27 Ch 7: Kronig-Penney model; Empty lattice approximation **HW 6 due**	10	11 Lecture 28 Ch 7: Wave eqn of electron in a periodic poten. ("Central Eqn")
	14 Lecture 29 Ch 7: Nearly free electron model ("Perturbation Theory")	15	16 Withdraw deadline Lecture 30 Ch 7: NFE model, cont.; Number of orbitals in a band **HW 7 assigned**	17	18 Lecture 31 Ch 7: Wrap-up; Ch 8: Eqns of motion (effective mass, holes, band gap)
	21 Lecture 32 Guest Lecturer (Colton out of town)	22	23 Lecture 33 Guest Lecturer (Colton out of town)	24	25 Lecture 34 Ch 8: Intrinsic carrier concentration **HW 7 due; HW 8 assigned**
April	28 Lecture 35 Ch 8: Impurity conductivity (skipping rest of Ch 8 after that)	29	30 Lecture 36 Ch 17: p-n Junctions; Heterostructures **HW 8 due; Begin Exam 2**	31	1 Discontinuance deadline Lecture 37 Ch 17: Semicond lasers; LEDs
	4 Lecture 38 Ch 14: Dielectric function of the electron gas	5	6 Lecture 39 Ch 14: Plasmons; electrostatic screening **End Exam 2; HW 9 assigned**	7	8 Lecture 40 Ch 14: Polaritons
	11 Lecture 41 Ch 15: Optical reflectance	12	13 last day of classes Lecture 42 Ch 15: Excitons **HW 9 due; Final assigned**	14 Reading Day	15 Reading Day
	18 Begin Final Exams (ignore scheduled final exam on this day)	19	20 **Final exam due**	21 End Final Exams/Graduation	22 Graduation