Preliminary outline of Physics 602, Graduate Solid State Physics, Spring 2010

1. Phonons – Theory
2. Phonons – Measurement via neutron scattering
3. Review of occupation number representation and second quantization
4. Electron-phonon interaction – Theory
5. Electron-phonon interaction – Experimental consequences for transport coefficients
6. High magnetic fields and orbital quantization
7. Electron-electron interaction via phonons
8. Superconductivity - experimental facts, BCS theory, Ginzburg-Landau theory, type II superconductors
9. Selected advanced topics