This is a second course in Solid State Physics (Condensed Matter Physics). It follows PHYS 624, Introduction to Solid State Physics (Condensed Matter Physics), which is a prerequisite. It precedes a course Advanced Condensed Matter Physics which will be given in the Fall 2007 or Spring 2008. The text book above is the same text as used last time the course was given in Fall 2005. Topics begin with Chapter VIII, review of III and IX and go on to VI, IV, XV,XVI,XVII,X,XI,XVIII. Specifically, the topics included in PHYS 803 are:

- Adiabatic Approximation, Review Electrons and Phonons,
- Electronic properties of selected crystals
- One Electron Approximation,
  - Hartree-Fock
  - Density Functional Theory
- Magnetism
  Single electrons in a magnetic field
  Localized Magnetic Moments and Kondo Impurities
  Magnetic ordering in crystals
- Scattering of Particles by Crystals
- Optical properties (of metals)
- Bose-Einstein Condensation, Superfluidity
- Superconductivity

*Come and Bring a Friend.*

First Lecture: February 6, 2007
Registration accepted up to February 16, 2007 (last drop/add day).

**MARKING SCHEME:**
- Quiz (2) – 1.0 Hours
- Final – 2.0 Hours
- Problems – 30 %
- Quizzes – 40 %
- Final- 30-40 %