

University of Virginia  
Physics Department  
**PHYS 5620: Solid State Physics (Fall 2015)**

**Instructor**

Jeffrey Teo  
Physics Bldg 327C  
email: jteo@virginia.edu  
Office hour: Wednesday 2pm – 5pm, or by appointment

**Lectures**

Tuesday and Thursday 12:30pm – 1:45pm, Aug 25 – Dec 08, 2015  
Physics Bldg 210

**Textbook and references**

Charles Kittel, *Introduction to Solid State Physics* (Main text, required)  
Neil W. Ashcroft and N. David Mermin, *Solid State Physics*  
C. J. Bradley and A. P. Cracknell, *The Mathematical Theory of Symmetry in Solids: Representation Theory for Point Groups and Space Groups*  
P. M. Chaikin and T. C. Lubensky, *Principles of Condensed Matter Physics*  
Michael P. Marder, *Condensed Matter Physics*

**Homework**

Roughly once every 2 weeks, due at the *beginning* of class on the due date

**Evaluation**

Homework 25%, Mid-term I 25%, Mid-term II 25%, Project presentation 25%

**Syllabus**

Crystal structure, wave diffraction and reciprocal lattice (Ch.1-2)  
Phonons (Ch.4-5)  
Free electrons Fermi gas (Ch.6)  
Electronic band theory (Ch.7)  
Semiconductors (Ch.8)  
Superconductors (Ch.10)  
Exotic phases of Matter (lectures) *or* Magnetism (Ch.11-12)