

# Physics 5555 (c r n 94894)

## Solid State Physics I

Fall 2009

*Monday, Wednesday 5:30 – 6:45, Robeson 116*

*Instructor: Jean J. Heremans  
Office: Robeson 321, phone 1-4604  
heremans@vt.edu*

Text: *“Solid State Physics”, Ashcroft and Mermin.  
Also books by Madelung, Ibach, Ziman, Harrison, Elliott, and others, to  
be consulted for completeness in specific topics.*

Course coverage: *Ashcroft and Mermin chapters 1--16 (~16-33 covered in 5556)*

Phys 5555 and 5556 together cover: Drude and Sommerfeld theories, crystal structure, reciprocal space, quantum mechanics of periodic potentials, transport coefficients, Fermi surfaces, band structure in semiconductors and metals, gap states in semiconductors, surfaces, heterostructures and nanoscale effects, correlation effects, phonons and other excitations, magnetic materials

Office hours: *by appointment*

Grading: Homework, 30%  
Midterm, 20%  
Final, 50%

Final: Friday, December 11 at 7 PM

Midterm: in class, to be determined

Homework: one or two problems per week, due the week thereafter.

*Reading the material to be covered before class is encouraged to  
benefit maximally from the lectures.*

Honors policy: academic dishonesty will be dealt with per University honor rules.