

Physics 565 -- Solid State Physics  
SUNY College at Cortland  
Physics Department

Catalog Description: The properties of solids. Topics include crystal structure, electronic and structural properties, the free-electron model, band theory, metals, semiconductors, superconductivity and magnetism. Prerequisites: PHY 410, MAT 430. MAT 430 maybe taken concurrently. (3 cr. hr.)

Required Texts: *Introduction to Solid State Physics* by Charles Kittel (Eighth Edition)

and

*Schaum's Outline of Mathematical Handbook of Formulas and Tables*, by Murray Spiegel, Seymour Lipschutz, and John Liu (Third Edition)

Course Information:

Spring 2009 Term, 3 credit hours

MW 4:25-5:40 p.m.

Bowers 153

Professor Information:

Dr. Brice Smith

Bowers 143 (office)

Bowers 141 (lab)

brice.smith@cortland.edu

Office Hours: MWF 9:00-10:00am and 12:30-2:00pm

(Please make an appointment if you would like to see me at another time.)

Evaluation of Student Grades will be based on the total points accumulated from the following components:

3 Take Home Exams      80 points each

Final Exam                120 points

Homework                 240 points

Maximum Points Possible: 600

Problem sets will typically be handed out on Wednesday and will be due the following Wednesday when an answer key will be provided. Late problem sets will not generally be accepted. A final curve will be established at the end of the course for the assignment of individual letter grades.

Tests: Tests will be handed out on March 2, March 30, and April 27

Students with a Disability:

If you are a student with a disability and wish to request accommodations, please contact the Office of Student Disability Services located in B-40 VanHoesen or call (607) 753-2066 for an appointment.

Information regarding your disability will be treated in a confidential manner. Because many accommodations require early planning, requests for accommodations should be made as early as possible.

Physics 565 -- Spring 2009

<u>Date</u>	<u>Topic</u>	<u>Text</u>
Jan. 21, 26, 28	Crystal Structure	Chapter 1
Feb. 2, 4	Reciprocal Lattice	Chapter 2
Feb. 9, 11, 16	Crystal Binding and Elastic Constants	Chapter 3
Feb. 18, 23, 25	Phonons I. Crystal Vibrations	Chapter 4
Mar. 2	<i>Exam One</i>	
Mar. 4	Phonons II. Thermal Properties	Chapter 5
Mar. 9, 11	<i>Spring Break - No Classes</i>	
Mar. 16, 18	Phonons II. Thermal Properties, cont.	Chapter 5
Mar. 23, 25	Free Electron Fermi Gas	Chapter 6
Mar. 30	<i>Exam Two</i>	
Apr. 1, 6, 8	Energy Bands	Chapter 7
Apr. 13, 15, 20, 22	Semiconductor Crystals	Chapter 8
Apr. 27	<i>Exam Three</i>	
Apr. 29, May 4	Superconductivity	Chapter 12