

Instructor: Mick O'Shea

My Office: CW331 (Office hours: Tues., Thurs. 2:00 – 3:20 p.m.)

e-mail: mjoshea@phys.ksu.edu

Class meets: Tues, Thurs., 12:30 – 1:45 p.m., Seaton (not Cardwell) Hall 162

Leave early from Cardwell, be on time!

Text:

The required text for this class is N. Ashcroft and N. D. Mermin, 'Solid State Physics'. I will occasionally use C. Kittel, 'Introduction to Solid State Physics'. You do not need to buy Kittel, it is on reserve in the library.

Starts on:	Chapter/Topic	Homework and due Date
Aug. 21, 26	Chap. 4, Lattices	Aug. 28 th : Chap. 4- 1, 3, 5, 7
Aug 28, Sept 4	Chap. 5, Reciprocal Lattices	Sept. 4 th : Chap. 5- 1, 2, 3
Sept. 9, 11	Chap. 6, Crystal Structure	Sept. 16 th : Chap. 6-1, 2, 3, 5
Sept. 16, 18	Chap. 7, Crystal Symmetry	Sept. 23 rd : Chap. 7 – 1, 2, 4,
Sept. 23, 25	Chap. 1, Drude/Free electron theory	Sept. 30 th : Chap. 1 – 1, 2
Sept. 30, Oct 2, 7	Chap. 2,3. Sommerfeld/ Failures	Oct. 7 th : Chap. 2 – 1, 2
Oct. 9	Exam 1 – covers Chaps 1-7 (no books, no notes can be used)	
Oct. 14	No Class – Student Holiday	
Oct. 16, 21	Chap. 8, Electron Levels	Oct. 23 rd : Chap. 8 – 1, 2
Oct. 23, 28, 30	Chap. 9, Weak Potentials	Nov. 4 th : Chap. 9 – 1, 3, 5
Nov. 4, 6	Chap. 10, Tight Binding	Nov 11 th : Chap. 10 - 1
Nov. 11, 13	Chap. 12, Electron Dynamics	Nov. 18 th : Chap. 12 – 1, 2, 3, 4, 7
Nov. 18	Chap. 15, Bandstructure of Metals	Dec. 4 th : Chap. 15 – 1, 4
Nov. 20	Exam 2 – covers Chaps. 8, 9, 10, 12 (no books, no notes can be used)	
Nov. 25	Chap. 15 continued	
Nov. 27	Thanksgiving - holiday	
Dec. 2	Chap. 15 continued	
Dec. 4, 9	Chap. 22, Harmonic Crystal	Dec. 11 th : Chap. 22 – 1, 2, 3
Dec. 11	Chap. 23, Intro QM of Phonons	Before final: Chap. 23-2
Final Exam Tues. Dec 16th	On all material covered during semester. You can use Ashcroft and Mermin in the final if there are no notes in your copy. 9:40 a.m. – 11:30 a.m.	

Description of Class

This is the first semester of a two semester course and will cover the topics listed in the table below. It is a rather broad introduction to solid state physics at the graduate level.

The second semester of this course (spring 2004) will cover phonon physics, soft condensed matter, semiconductors, magnetism, superconductivity.

Grade:

Homework	25%
Exam 1	20%
Exam 2	20%
Final exam	35%

A	$\geq 90\%$
B	$\geq 80\%$
C	$\geq 70\%$
D	$\geq 60\%$
F	$< 60\%$

Important Statements and Policies

If you have any condition such as a physical or learning disability, which will make it difficult for you to carry out the work as I have outlined it or which will require academic accommodations, please notify me and contact the Disabled Students Office (Holton 202), in the first two weeks of the course.

Plagiarism and cheating are serious offenses and may be punished by failure on the exam, paper or project; failure in the course; and/or expulsion from the University. For more information refer to the "Academic Dishonesty" policy in K-State Undergraduate Catalog and the Undergraduate Honor System Policy on the Provost's web page at: <http://www.ksu.edu/honor/>.