

Northern Illinois University

Course Syllabus for Physics 580 --- Solid State Physics

Fall Semester, 2024

Instructor: Dennis Eugene Brown

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Office Hours: TTh 11am-3pm

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Course Textbook: Introduction to Solid State Physics (8th ed) **Author:** Kittel

Physics 580 WebPage: www.niu.edu/brown

We will be covering the following material in Kittel: (Tentative Schedule)

Crystal Structure:	Chapter 1
Crystal Diffraction:	Chapter 2
Crystal Binding	Chapter 3
Quiz #1	
Phonons I:	Chapter 4
Phonons II:	Chapter 5
Quiz#2	
Free Electron Fermi Gas:	Chapter 6
Energy Bands:	Chapter 7
Quiz #3	
Semiconductor Crystals:	Chapter 8
Fermi Surfaces and Metals:	Chapter 9

Final Exam (xday, December x, x-x:xx p.m.)

Problem Sets will be posted on www.niu.edu/brown every week, and they will be due one week later at the beginning of the class (**not at the end of class**). A scanned or cell phone copy must also be uploaded to Blackboard as a pdf file. Late homework will be penalized 10% per day.

Each lecture will consist of oral defenses of your understanding of the concepts learned in this condensed matter physics course. Thus, class participation is required.

Tentatively: Class participation: 50% of your grade
 Problem Sets: 50% of your grade
 Final Exam: no Final Exam

There are Physics Tutors available in Faraday East Room 251

Additional Notes:

- (1) When the solutions are posted on Blackboard, late homework will no longer be accepted.
- (2) Homework should have the following format (or you will be penalized):

The diagram illustrates the required format for a homework assignment. It consists of a rectangular box divided into two main sections. The top section is for student information, and the bottom section is for solutions. Annotations with red arrows point to specific parts of the box:

- Top Right:** A red arrow points to the text "First, Last Name", "Course", "Date", and "Instructor's Name" with the note: "Put this info in the upper right hand corner."
- Left Margin:** A red arrow points to the space to the left of the box with the note: "Put # of problem to the left of the vertical line. If you use graph or blank paper, draw the vertical line."
- Top Left:** A red arrow points to the top-left corner of the box with the note: "Make certain the Title is given."
- Bottom Section:** The bottom section is divided into two numbered items:
 - Item 1: A circled "1" is in the left margin, and the text "Write your Solution to Problem #1 here showing all your work & figures" is in the main area. A red arrow points from the "Title" note to this section.
 - Item 2: A circled "2" is in the left margin, and the text "Write your Solution to Problem #2 here showing all your work & figures" is in the main area.

A red circle on the right side of the diagram contains the text: "Homework must be written in on a separate sheet of paper, *not on the Problem Set handout*."

ACCESSIBILITY: Northern Illinois University is committed to providing an accessible educational environment in collaboration with the Disability Resource Center (DRC). Any student requiring an academic accommodation due to a disability should let his or her faculty member know as soon as possible. Students who need academic accommodations based on the impact of a disability will be encouraged to contact the DRC if they have not done so already. The DRC is located in the Campus Life Building, Suite 180, and can be reached at 815-753-1303 or drc@niu.edu.

HONOR CODE: Be aware of the policies and procedures regarding your rights as well as responsibilities that are published in the NIU Student Code of Conduct, which is available on line at: <https://www.niu.edu/conduct/pdf/code-of-student-conduct.pdf>.

Working with other students on homework is encouraged, but outright copying (plagiarism) of other student's work is strictly forbidden and will be reported to the NIU administration.

Good academic work must be based on honesty. The attempt of any student to present as his or her own work that which he or she has not produced is regarded by the faculty and administration as a serious offense. Students are considered to have cheated if they copy the work of another during an examination or turn in a paper or an assignment written, in whole or in part, by someone else. Students are guilty of plagiarism, intentional or not, if they copy material from books, magazines, or other sources without identifying and acknowledging those sources or if they paraphrase ideas from such sources without acknowledging them. Students guilty of, or assisting others in, either cheating or plagiarism on an assignment, quiz, or examination may receive a grade of F for the course involved and may be suspended or dismissed from the university.