

Time & Place: Tu & Th, 11:00 AM – 12:30 PM, 385 Le Conte

Office Hours: Tu & Th, before class or by appointment, 539 Birge

Reader: Jesse Noffsinger 542 Birge **Office Hour:** Mon. 1:30–2:30 pm

Discussion Section: W 2–3, 4 Evans

Prerequisites: Physics 240A

Requirements: Five to seven problem sets (70% of grade) and a term paper on an approved subject.

Suggested Texts:

Undergraduate level: Kittel, *Introduction to Solid State Physics*
Ashcroft and Mermin, *Solid State Physics*

Intermediate level: Ziman, *Principles of the Theory of Solids*

Graduate level : Cohen and Chelikowsky, *Electronic Structure and Optical Properties of Semiconductors*
Kittel, *Quantum Theory of Solids*
Madelung, *Introduction to Solid State Theory*
Schrieffer, *Theory of Superconductivity*

Other texts and references will be suggested as different subjects are introduced. Reference texts are on reserve in the Physics Library.

Approximate Outline of Physics 240B:

Transport theory, Fermi surface measurements, Hall effects, electron-phonon interactions, polarons, superconductivity-experimental facts and fundamentals, BCS theory and beyond, superconducting mechanisms, many-body problem, Green's functions and Feynman diagrams, electron gas, Nambu-Gor'kov-Eliashberg theory of superconductivity, and current theories of superconductivity. Other miscellaneous topics will be discussed.

Course Homepage: <http://civet.berkeley.edu/phys240B/>