

## Physics 617 Bibliography:

The following are the course texts: "Quantum Theory of Materials", Kaxiras and Joannopoulos, 2019, which I selected for its good coverage of current topics in condensed matter without being too dense or encyclopedic, and "Solid-state physics: an introduction to principles of materials science", Ibach and Lüth, 2009 4<sup>th</sup> ed., which I included for its coverage of some traditional concepts which are not included in Kaxiras and Joannopoulos (and since it is easily accessible for our course at the TAMU library).

Aside from these, for additional help in understanding the material, or for further treatment of the subject, here is a short list of other recommended texts. They are arranged roughly in order of increasing sophistication:

Omar, Elementary Solid State Physics. A well-written undergraduate-level text, older text provides a very nice, logically arranged all-around introduction.

Kittel, Introduction to Solid State Physics. Long history of use as general text. I have used it for undergraduate course. Provides a good introduction although I would recommend 6<sup>th</sup> ed or earlier for reading as an introduction, continuity suffered in added material in later editions.

Blakemore, Solid State Physics. Readable and interesting treatment, especially strong for principles of semiconductor physics.

Ziman, Principles of the Theory of Solids (1972 or 1979). Classic, still excellent overview of solid state theory.

Ashcroft and Mermin, Solid State Physics. 1976 classic graduate text used many times for this course, well written foundation text for this course.

Mahan, Condensed Matter in a Nutshell. Terse but quite comprehensive with much up-to-date (2010) material; nice as a reference, I think not really intended as a textbook.

Marder, Condensed Matter Physics. Very comprehensive; I used as course text in the past. 2015 2<sup>nd</sup> edition full of many recent examples.

Snoke, Solid State Physics: Essential Concepts. Includes good coverage of optics, Bose condensation; 2020 recent 2<sup>nd</sup> edition has many added topics, looks quite useful.

Cohen and Louie, Fundamentals of Condensed Matter Physics. (2016). Graduate text should be a useful complement to many parts of this course; I think it provides a good starting point for many current topics in condensed matter physics.

Jones and March, Theoretical Solid State Physics. Older, but still great 2-volume advanced text set, nice details on solid state/condensed matter theory.