Physics 489 – Solid State Bibliography:

In addition to the course text the list below gives some other general texts, and more focused books for specific reference. The list extends into some graduate-level texts.

A. General Solid State Texts:


Other recommended books, arranged very roughly by order of increasing sophistication:

Hook & Hall, Solid State Physics. Might be a good complement for this course, interesting order of materials.

Omar, Elementary Solid State Physics. I recommend this as optional choice, nicely written text provides a good framework for the important physics results, although lacks coverage of recent developments.


Gersten & Smith The Physics and Chemistry of Materials. (2001) Aimed at a slightly wider audience including materials sciences. Many specific materials references [if a bit encyclopedic]. If you purchase this book it also has a huge web-based supplement with great detail on modern techniques and materials.


Ashcroft and Mermin, Solid State Physics. Classic graduate course text, very well written. Not so up to date but we often use it for our graduate course.

Harrison, Solid State Theory, and Electronic Structure and the Properties of Solids. The first is a good general introduction, though more of a graduate text. Second one provides a more chemical perspective. Both are inexpensive in Dover editions.


Mahan, Condensed Matter in a Nutshell. (2010) Terse but interesting; physics-oriented general text includes comprehensive and up-to-date overview of many current topics.

Marder, Condensed Matter Physics. Comprehensive graduate text; 2010 2nd edition has many recent examples.

Jones and March, Theoretical Solid State Physics. A more advanced text, I like this classic two-volume set. Not so expensive in Dover paperback.

Callaway, Quantum Theory of the Solid State. Advanced text.

B. A few recommended topical texts and more detailed references:

Yu and Cardona, Fundamentals of Semiconductors. 4th ed. out in 2010; good and up-to-date for fundamentals of semiconductor materials, also optical properties.


Fox, Optical Properties of Solids. Focused introduction for more detail on optical properties.

Blundell, Magnetism in Condensed Matter. Useful introduction, a good place to get started if you are interested in magnetism.

Chikazumi and Soshin, Physics of Ferromagnetism. Monograph with great depth on this topic.

Rose-Innes and Rhoderick, Introduction to Superconductivity. Clearly written introduction.

Tinkham, Introduction to Superconductivity. Good comprehensive reference for more detail (graduate level).