

PHYSICS 363 - Physics of Solids

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TEXT: *Solid State Physics, An Introduction, by Philip Hofmann*
The course will focus on material in the first 7 chapters of Hofmann's book.

Supplementary texts:
Elementary Solid-State Physics, M. Ali Omar
Introduction to Solid-State Physics, Charles Kittel, 8th ed.

Accommodations for Students with Disabilities

Lehigh University is committed to maintaining an equitable and inclusive community and welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact Disability Support Services (DSS), provide documentation, and participate in an interactive review process. If the documentation supports a request for reasonable accommodations, DSS will provide students with a Letter of Accommodations. Students who are approved for accommodations at Lehigh should share this letter and discuss their accommodations and learning needs with instructors as early in the semester as possible. For more information or to request services, please contact Disability Support Services in person in Williams Hall, Suite 301, via phone at 610-758-4152, via email at indss@lehigh.edu, or online at <https://studentaffairs.lehigh.edu/disabilities>.

The Principles of Our Equitable Community:

Lehigh University endorses The Principles of Our Equitable Community [http://www.lehigh.edu/~inprv/initiatives/PrinciplesEquity_Sheet_v2_032212.pdf]. We expect each member of this class to acknowledge and practice these Principles. Respect for each other and for differing viewpoints is a vital component of the learning environment inside and outside the classroom.

Lectures and student-teacher interactions:

Lectures will be given in person Tues. and Thurs. 1:35 pm – 2:50

Powerpoint slides for lectures will be made available on coursesite.

Student questions outside of class will be handled either by individual zoom meetings or by in-person meetings at my office. For individual meetings, please make an appointment with me by e-mail.

My preferred mode of communication is e-mail.

Initial competences:

Introductory quantum mechanics and thermal physics

Final competences:

Crystal lattices, Miller indices, and crystal structures

X-ray diffraction and the reciprocal lattice

Crystal binding and crystal types

Specific heat, lattice vibrations, neutron diffraction, thermal conductivity

Free electron theory of metals, electronic specific heat

Elementary theories of band structure, nearly free electron model, tight binding model

Semiconductor physics, electrons and holes, effective mass, simple devices, excitons, quantum structures