

# Syllabus

Instructor	Year	Semester	Course Number	Course Title	Section
Jeen, Hyoung Jeon	2014	Fall	PH60505	Solid State Physics (I)	

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Office Hours : M 16:20 ~ 17:20

## 1. Course Objectives & Description

### 1) Course objectives

Prerequisites of solid state physics (I) are graduate level electrodynamics and undergraduate level solid state physics. Based on basic concepts from undergraduate-level solid state physics and electrodynamics, we will have deeper level of knowledge on solid state physics.

### 2) Course Description

The class consists of two lectures per week (75 min. in each). Homeworks will be given at the end of each chapter. From this class, you will learn Physics of metals, crystallography, and electrodynamics in solids.

## 2. Required Textbooks

Solid state physics - Ashcroft/Mermin (Brooks/Cole)

## 3. Requirements & Grading

- Midterm: 40%
- Final: 40%
- Homeworks: 15%
- Attendance: 5%
- if you miss more than 1/3 of entire lectures, F grade will be given.

#### 4. Schedule

Week No.	Topics and Activities	Assignments & Other Instructions
Week 1	The Drude Theory of Metals	Homeworks will be given at the end of each chapter
Week 2	The Drude Theory of Metals	
Week 3	The Sommerfeld Theory of Metals	
Week 4	The Sommerfeld Theory of Metals	
Week 5	Crystal lattices	
Week 6	The Reciprocal lattices	
Week 7	Determination of Crystal Structures by X-ray Diffraction	
Week 8	Mid-term	
Week 9	Electron Levels in a Periodic Potentials	
Week 10	Electron Levels in a Periodic Potentials	
Week 11	Electrons in a Weak Periodic Pentential	
Week 12	Electrons in a Weak Periodic Pentential	
Week 13	The Semiclassical Model for Electron Dynamics	
Week 14	The Semiclassical Model for Electron Dynamics	
Week 15	The Semiclassical Theory of Conduction in Metals	
Week 16	Final	

#### 5. References

Solid State Physics - J. J. Quinn and K. S. Yi (Springer)  
Introduction to Solid State Physics - C. Kittel (Wiley)