

## Tentative Syllabus for Physics 521

### Introduction to Solid State Physics

Fall 2014

- Catalog Description:** A study of crystal structure, lattice vibrations, thermal, dielectric, and magnetic properties of solids, semiconductors, and transistors
- Supplemental Description:** This course introduces the crystal structures and their role in determining the various physical properties of the materials. The techniques used for crystal structure determination are also covered.
- Textbook:** Fundamentals of Condensed Matter and Crystalline Physics  
David L. Sidebottom  
Cambridge University Press, 2012, 978-1-107-01710-8
- Lecture Time and Place:** MW, 6:00 PM – 7:15 PM, STC-122
- Instructor:** Dr. A. R. Chourasia  
Office: STC-232  
Phone: 903-886-5485; 903-886-5491  
Fax: 903-886-5480  
Email: Anil.Chourasia@tamuc.edu
- Office Hours:** 2 – 4 pm OR by appointment
- Goals of the Course:** Students will gain qualitative knowledge of solid state physics and will learn the importance of the electronic structure in determining the various physical properties of materials. The different experimental techniques used in solid state physics will also be covered

#### **Grading Procedure and Scale:**

The grade is determined from homework, midterm test, the paper, and the final exam as outlined below:

*	Homework and attendance	20%
*	Paper (Writing and Presentation)	15%

*	Midterm	25%
*	Final Exam (comprehensive)	40%

90 and above:	A
80 and above but less than 90:	B
70 and above but less than 80:	C
60 and above but less than 70:	D
Less than 60:	F

Missing an exam without first making arrangements for make-up with the instructor (excused absence cleared before the exam) will automatically result in the failing grade. Missing other class periods will result in penalties as described under the attendance section below.

Any decision to curve the grade will be taken at the end of the semester.  
**Five unexcused absences will automatically result in a failing grade.**

#### **Lecture (Tentative)**

Chapter 1	Crystal Structure
Chapter 2	Amorphous Structure
Chapter 3	Bonds and Cohesion
Chapter 4	Magnetic Structure
Chapter 5	Scattering Theory
Chapter 6	Scattering by Crystals
Chapter 7	Scattering by Amorphous Matter
Chapter 10	Crystal Vibrations

**Final Exam is on Monday, Dec. 8 at 6:00 PM**

**Attendance and Tardiness:** Students are expected to be on time and present for all class meetings. Excused absences can be arranged prior to the class period being missed for appropriate activities as determined by the instructor. If an emergency results in an absence, the student should contact the instructor as soon as possible informing the instructor of the emergency and inquiring about ways to make up the missed class. The instructor will make judgements on how to handle the situation. Possible reasons for an excused absence are listed in the “ Student’s Guidebook” under class attendance policy.

**Classroom Behavior:** Disorderly conduct which interferes with the normal classroom atmosphere will not be tolerated. The classroom instructor is the judge of such behavior and may instruct a disorderly student to leave the room with an unexcused absence or in more serious situations a student may be removed from the class with a failing grade.

**Cheating and other Breaches of Academic Conduct:** Academic cheating, plagiarism, and other forms of academic misconduct may result in removal of the student from class with a failing grade or may in extreme cases result in suspension or expulsion from the University as described in the “Code of Student Conduct” section of the “ Student’s Guidebook”.

**Students with Disabilities:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

**Office of Student Disability Resources and Services  
Texas A&M University-Commerce  
Gee Library  
Room 132**

**Phone (903) 886-5150 or (903) 886-5835**

**Fax (903) 468-8148**

**[StudentDisabilityServices@tamuc.edu](mailto:StudentDisabilityServices@tamuc.edu)**

**Evaluation of Instruction:** Students will be given opportunities to evaluate instruction near the end of the semester. The physics department utilizes a scantron graded questionnaire with statements regarding various elements of instruction and in addition utilizes an open ended form where students can make comments on all elements of the classroom. These comments are given to the instructor and department head soon after the grades are recorded. If students have concerns about the classroom experience during the semester they should inform the instructor of those concerns and failing a satisfactory response may, as a last resort, contact the physics department head with those concerns.