

TENTATIVE SYLLABUS FOR PHYSICS 524

SURFACE PHYSICS

FALL 2013

- Course Description:** Surface Physics, Three Semester hours
The course focuses on the physics underlying the techniques used to analyze the surface region of materials. Processes that govern the interactions of particles and radiation with matter will be covered. Characterization of materials using modern techniques will be covered.
- Textbook:** Fundamentals of Surface and Thin Film Analysis
L. C. Feldman and J. W. Mayer
Prentice Hall, ISBN 0-13-500570-1
- Lecture Time and Place:** MW, 6 – 7:15 AM, Room: STC- 146
- Instructor:** Dr. A. R. Chourasia
Office: STC-232 (STC-113)
Phone: 886-5485; 886-5491; Fax: 886-5480
e-mail: Anil.Chourasia@tamuc.edu
- Office Hours:** 2 – 4 pm OR by appointment
- Goals of the Course:** Students will gain knowledge on the measurement of particles and radiation emerging from a solid that is irradiated by photons and electrons. Characterization based on the following topics will be covered: Coulomb scattering from the atom (Rutherford backscattering), formation of inner shell vacancies in the electronic structure (x-ray photoelectron spectroscopy), transitions between levels (electron microprobe and Auger electron spectroscopy).
- Grading Procedure and Scale:**

*	Homework and attendance	20 %
	(Late Homework penalty 10% each day)	
*	One Mid-term Exam	30 %
*	Project	20 %
*	Final exam (comprehensive)	30 %

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 consume 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 and Test (Tentative)

Chapter 1	An Overview: Concepts, Units and Bohr Atom
Chapter 2	Atomic Collisions and Backscattering Spectrometry
Chapter 3	Energy Loss of Light Ions and Backscattering Depth Profiles
Chapter 6	Electron-Electron Interactions and the Depth Sensitivity of Electron Spectroscopies
Chapter 7	Surface Structure
Chapter 8	Photon Absorption in Solids and EXAFS
Chapter 9	X-ray Photoelectron Spectroscopy (XPS)

Final Exam is on Monday, December 16 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 judgment on how to handle the situation. Possible reasons for excused absence are listed in the “Student’s Guidebook” under class attendance policy. Attendance and tardy records will be maintained and both may result in deductions from your overall grade.

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 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148

StudentDisabilityServices@tamu-commerce.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.