

Principles of Physics III

Welcome to Physics 163. This class is the last in a three-semester introductory honors sequence in physics. Both differential and integral calculus will be used throughout the course. The course will cover mainly wave interference and diffraction, quantum mechanics, and condensed matter physics.

I. Course Instructor

	<i>Office</i>	<i>Office Hour</i>	<i>Phone</i>	<i>E-mail</i>
Prof. Jia Grace Lu TA - Rai Gautam Lecture hours: TuTh 12–1:50 PM Lecture location: SLH 100	SSC 215B	M 2:30 – 4:00pm	213-821-4328	jialu@usc.edu gautamra@usc.edu

II. Course Materials

II.A. Prerequisites

The prerequisite for this course includes Physics 162 or 152, and Math 226.

II.B. Recommended Textbook:

Physics by Hans C. Ohanian;

Quantum Physics of Atoms, Molecules, Solids, Nuclei, and Particles

by Robert Eisberg and Robert Resnick

II.C. Homework

Homework consists of a few problems that will be written out as traditionally done in science classes. They should be turned in to your instructor before due date. Late homework will be accepted at a score of -20% per day. No homework will be accepted after the solution is posted.

II.D. Lectures

A portion of each week's lecture time will be designated to illustrative examples, including some from the homework problems.

Please do not use cell phones and laptops during classes, unless you need it for note taking.

Important course information and course materials will be posted on the “Blackboard” course web site at the USC learning portal (blackboard.usc.edu). On this page you will find notices, assignments, solutions, lecture materials, *etc.* It is your responsibility to check this page regularly. If you find a grade that has been recorded incorrectly, please inform your professor immediately.

II.E. Laboratory

Labs will not meet during the first week of classes. At every laboratory meeting after this week you must bring your *Laboratory Notebook*. The *Laboratory Manual* will explain how your *Notebook* should be prepared in advance of each week's meeting.

You must attend *only* the lab section in which you are registered. If you miss a laboratory period, it is *your responsibility* to make arrangements with your TA to make up the missing experiment. Your TA will not make this arrangement for you. *You cannot make up a missed experiment by attending a different laboratory section.* TAs will not accept students in the laboratory who are not registered in their section without prior official arrangements.

Further questions concerning the laboratory should be referred to the Lab Director, Dr. Gökhan Esirgen, KAP B19, 740-1138, E-mail: esirgen@usc.edu.

II.F. Examinations

There will be two midterm examinations and a final examination. The midterms are tentatively scheduled in class on **Feb. 7** and **Mar. 21**. The midterms will cover material incrementally through the semester. The Final will be comprehensive of the entire semester. It will take place on **May 8**, 2 - 4 pm.

There will be quizzes (announced and unannounced) in class. These quizzes test basic course materials and help one to be on track of the course.

All exams and quizzes must be of independent work. There are **no make-up examinations**. Students with special examination requirements as documented by the Office of Disability Services must present their form in the beginning of the semester, and certainly no later than 7 days prior to the first midterm.

III. Topics

1. Wave, interference & diffraction
2. Thermal radiation and Planck's postulate
3. de Broglie postulate
4. Bohr's model
5. One-electron atoms
6. Schrödinger's theory
7. Time-independent Schrödinger equations
8. Metals & semiconductors

IV. Grading

The final course grade will be based upon the following components:

Component	Weight
Homework	15%
Laboratory	20%
Quizzes	5%
Midterms	30%
Final Exam	30%

V. Academic Integrity:

Homework assignments may be done in collaboration with other students, and help is also available as noted above. Under no circumstances should students seek out homework solutions

from alumni of PHYS 163 or from any other printed or online solution sets/manuals. Failure to abide by this rule will result in an automatic zero for the assignment and a report to the Office for Academic Integrity.

VI. Student Ombudsman

All courses in the Department of Physics & Astronomy have an assigned Student Ombudsman to serve students as a confidential, neutral, informal, and independent resource when they wish to discuss issues concerning their course without directly confronting their instructor. The Student Ombudsman for this course is:

Chris Gould, gould@usc.edu, 213-740-1101, SSC 204.