PHYSICS 325
MODERN PHYSICS II

INSTRUCTOR: Barbara Neuhauser
            Thornton 315 (academic office)
            415-338-1468
            Thornton 106 (research office)
            barbjn@coolchips.sfsu.edu

E-MAIL CONTACT: You may e-mail me about administrative matters. Please do NOT e-mail questions about homework; I have to draw diagrams and wave my hands when I answer physics questions. Please use this subject in your e-mail messages: "PHYSICS 325: your name"

OFFICE HOURS: MWF 11:10 am - 11:45 am in TH 106 (tentative)
               Tuesday 1:00 pm – 2:00 pm in TH 106 (tentative)
               and by appointment

PREREQUISITE: Physics 320 (Modern Physics I)

REQUIRED TEXT: Quantum Physics of Atoms, Molecules, Solids, Nuclei, and Particles

RECOMMENDED TEXT: Physics: The Nature of Things by Susan M. Lea and John Robert Burke

CONTENT: Students are expected to master concepts in these areas:

Coupling of \( L \) and \( S \) in single and multi-electron atoms
Effective potentials and electron wave functions in multi-electron atoms
Atomic and molecular spectra
Elementary concepts and applications of nuclear physics
Elementary concepts of particle physics
Equivalence principle

LECTURES: Students are expected to attend ALL lectures and to ARRIVE ON TIME for the lectures. Please TURN OFF your cell phone during the lecture!!! A tentative lecture schedule accompanies this syllabus. Lectures will discuss appropriate portions of the textbooks and provide extensive supplemental materials. Usually, but not always, lecture notes will be handed out so that students can focus on the presentation. Relevant questions that can be answered briefly are welcomed during the lectures. Longer discussions of topics must be deferred to scheduled office hours.

HOMEWORK: Problem sets will be assigned each Monday (tentative) and will be due immediately after lecture on the following Monday (tentative). Students are expected to state briefly but clearly the justification for each major step in the solution to a problem. Sloppy homework sets may not be graded.
Students may discuss with each other general approaches to the problems, but each student must work out the detailed solutions by him/herself.

FAILURE TO HAND IN THE FIRST PROBLEM SET ON TIME MAY RESULT IN THE STUDENT BEING DROPPED FROM THE COURSE. Failure to hand in the remaining problem sets on time may result in a 25% penalty.

EXAMINATIONS:

MIDTERMS: Monday, 8 March 2010 (tentative); Lectures 1 - 14  
Monday, 19 April 2010 (tentative); Lectures 15 - 27
Each midterm exam will be taken in-class, closed-book, closed-notes. If the instructor’s workload has sufficient flexibility, each exam will be graded and returned for you to correct as an open-P325-textbook, open-P325-lecture-notes, do-it-yourself take-home exam. The reworked exam will then be graded, and the initial and final scores will be averaged.

FINAL: Friday, 21 May 2010, 10:45 am - 1:15 pm (Lectures 1 - 40)  
The final exam will be taken in-class, closed book and closed notes
The final exam MUST be taken at the scheduled time to avoid assignment of a grade of zero. Do not make travel plans that conflict with this schedule. No make-up final exam will be given except in the case of illness or personal crisis.

GRADE: A student must earn at least 50% of the total possible points in order to receive a grade of C – or better.

HOMEWORK: 40 % All homework sets will be included.
MIDTERM EXAMS: 20 % each (Total 40 %)
FINAL EXAM: 20%

CHEATING ON HOMEWORK OR EXAMS WILL RESULT IN FORMAL DISCIPLINARY ACTION BEING TAKEN AGAINST THE STUDENT.

STUDENTS WITH DISABILITIES:

Students with disabilities who need reasonable accommodations are encouraged to contact the instructor. The Disability Programs and Resource Center (DPRC) is available to facilitate the reasonable accommodations process. The DPRC is located in the Student Service Building and can be reached by telephone (voice/TTY 415-338-2472) or by email (dprc@sfsu.edu).
STUDENT SURVEY FORM

Please fill out this form and hand it in at the beginning of the second lecture.

Name: ____________________________________________________________
(family) (given) _____

Major: ________________________________

Address: __________________________________________________________
________________________________________________________

Telephone: __________________________  E-mail: __________________________

Summary of undergraduate and graduate Physics and Chemistry courses already taken:

<table>
<thead>
<tr>
<th>Course</th>
<th>Date Completed</th>
<th>Grade (optional)</th>
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Comments or questions:

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