

INSTRUCTOR: Barbara Neuhauser Thornton 540 (academic office)
415-338-1468 Thornton 106 (research office)
barbjn@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 320: your name"

OFFICE HOURS: MWF 1:30 pm – 3:00 pm in TH 540 (tentative)
Tuesday Noon – 2:00 pm in TH 106 (tentative)
and by appointment

PREREQUISITES: Physics 230 (Introductory Electricity and Magnetism)
(Grades of C or better) Physics 240 (Introductory Optics and Thermodynamics)
Math 228 (Calculus III)

REQUIRED TEXT: **Quantum Physics of Atoms, Molecules, Solids, Nuclei, and Particles**
by Robert Eisberg and Robert Resnick (ISBN 0-471-87373-X)

RECOMMENDED TEXT: **Physics: The Nature of Things** by Susan M. Lea and John Robert Burke
(ISBN 0-314-05273-9)

LECTURE NOTES: Early in the semester students will be able to purchase a spiral-bound set of lecture notes from the Physics and Astronomy Club

OBJECTIVES: Students are expected to master basic concepts in the following areas and to be able to apply them to solve qualitative and quantitative problems.

Special relativity
Evolution of quantum mechanical concepts
Solution techniques for the 1-D Schrodinger equation
Wave function of the hydrogen atom
Orbital angular momentum and spin

- LECTURES: **Students are expected to attend ALL lectures and to ARRIVE ON TIME.**
- **Please TURN OFF your cell phone during lectures.**
 - A tentative lecture schedule accompanies this syllabus. Lectures will discuss appropriate portions of the textbooks and provide extensive supplemental materials.
 - Bound copies of the lecture notes will be available from PAC.
 - 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 Friday and will be due immediately after lecture on the following Friday.
- Each student who has turned in a problem set will be provided with a solution sheet attached to the graded problem set.
 - **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:
- QUIZZES: Approximately eight times during the semester a "take-home quiz" will be handed out during a lecture and will be due at the beginning of the following lecture. **Each student should work out the detailed solutions by him/herself without discussing the quiz with anyone or using solutions obtained from any source.**
- MIDTERMS: Friday, 14 October 2016 (tentative); in-class, closed-book, closed-notes
- Friday, 18 November 2016 (tentative); take-home, open-Physics 320 text, open-Physics 320 notes and problem set solutions
- The first midterm exam will be graded and returned for you to correct as an open-Physics 320 text, open-Physics 320 notes, **do-it-yourself** take-home exam.
 - The reworked exam will then be graded, and the initial and final scores will be averaged.

FINAL EXAM: Friday, 16 December 2016, 8:00 am – 10:30 am (lectures 1 – 42)

- **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 documented 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 minus or better.**

HOMEWORK: 35 % **All** homework sets will be included

QUIZZES: 15 % **All** quizzes will be included

MIDTERM EXAMS: 15 % each (Total 30 %)

FINAL EXAM: 20 %

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

LABORATORY: Students are expected to enroll in Physics 321 concurrently with Physics 320 unless an exception has been approved by the academic adviser. Physics 320 and 321 are graded separately.

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 Services Building room 110 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 Mathematics courses already taken:

| Course | Date Completed | Grade (optional) |
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Comments or questions: