

SD '00  
Pray

CHAMINADE UNIVERSITY

PHYSICS 312

MODERN PHYSICS

Spring Semester, 2000

Instructor: Dr. David Cooke

SYLLABUS

1. OBJECTIVE OF COURSE:

The course is an upper division introduction into modern physics. Selected chapters of the text are studied, giving an in-depth view of topics that are important to physics, including special relativity, quantum mechanics, statistical physics, solid state physics, and so on. These topics, which are fascinating in themselves, lead on to areas of topical interest, including superconductivity and holography. The approach is substantially mathematical, and a working knowledge of calculus a must.

You are expected to take the responsibility for reading the text yourselves. Each chapter should be read quickly just prior to the class presentation of the material - in order that you acquaint yourself with the main ideas that are in each chapter, and to get a good idea of the words and principles that are to be introduced in class. This first reading could consist of a ten minute skim. Then, as the material is currently being discussed, read through each section more carefully, making sure that you understand the detail of the work, and follow through the discussions and examples presented by the author.

2. TEXT: "MODERN PHYSICS" second ed. by Serway, Moses and Moyer (Publ. Saunders College Publishing)

3. CONTENT OF COURSE

The material covered in the course is drawn from selected chapters of the text, starting with special relativity, and going on to quantum theory, matter waves, etc. We will play the semester by ear, so to speak, and pursue topics that the class finds particularly interesting, and cover as much material as possible.

4. EVALUATION:

There will be two preliminary exams, to be held on about February 9th and March 24th. The final exam will be held at 10:30 a.m. on wednesday May 10th.

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| The overall grades are based on homework, quizzes, exams, etc, to the extent presented here: | Attendance:   | 5%   |
|  | Homework:     | 5%   |
|  | Quizzes:      | 30%  |
|  | Prelim. Exams | 30%  |
|  | Final Exam    | 30%  |
|  | TOTAL         | 100% |

The grades will also reflect the criteria stated in the Chaminade undergraduate catalog, which are:

- A -- Outstanding scholarship and an unusual degree of intellectual initiative.
- B -- Superior work done in a consistent and intellectual manner.
- C -- Average grade indicating a competent grasp of subject matter.
- D -- Inferior work of the lowest passing grade, is not satisfactory for fulfillment of prerequisite coursework.
- F -- Failed to grasp even the minimum subject matter; no credit given.
- I -- Did not complete a small portion of the work or final examination due to circumstances beyond the student's control. The issuance of an "I" grade is not automatic. Prior to reporting of grades a contract must be made between the student and the instructor for the completion of the course.

5. **LABORATORY:**

The laboratory course, PHY 315, is taken concurrently with the lectures. The lab periods will be used partly for lab experiments that illustrate relevant concepts in physics, in addition to off campus excursions to a power generating plants, for example.