PHY152 Laboratory in Modern Physics – Chaminade University

Instructor: Dr. Torrance L. Trevorrow
Class Times: Th 8:00-10:50, Henry Room 39
Dates: Instruction January 12th to May 1, 2009
Office Hours: Before or after class by arrangement.

Email: torrance.trevorrow@adjunct.chaminade.edu.

Text Book: Physics 3rd Edition, Volume 2 by James S.Walker.

Publisher: Pearson Prentice Hall, ISBN 0-13-173463-6.

Course Description: A laboratory course with experiments involving: electricity, magnetism, waves, sound, optics and other topics in modern physics.

Prerequisites: Physics 151 and concurrent registration in Physics 152.

Course Goals: To give the student an increased knowledge and experimental experience using a variety of physical apparatus, including lab procedures, lab safety and scientific reports.

Course Objectives:

- To give the student experience with safety and experimental procedures in a physics laboratory
- To provide skills necessary for organizing and preparing physical experiments
- To emphasize basic applications of physics, writing laboratory reports
- Encourage additional scientific inquiries, questions, and research

Methodology: A significant amount of your learning will come from class participation, following procedures, record keeping and reports, and following safety procedures. Lab notes and instructions will normally be provided at the beginning of each class.

Grading: Expressed as percentages: Lab Safety 10%, Lab Reports 50%, Lab Presentations 30%, Lab Quizzes 10%. Any serious violation of safety procedures will result in expulsion from the course, minor infractions 5% deduction per event from the final lab grade.

A	90% +	Outstanding Scholarship and excellent initiative with course
B	80% +	Superior Quality done in a consistent intellectual manner
C	70% +	Satisfactory showing competent understanding of course
D	60% +	Lowest passing grade, inadequate for prerequisites
F	0-59%	Unsatisfactory understanding and class work

Quizzes and presentations are open book and open notes. For any essay type questions original thinking and expression is required. Calculator is normally permitted.

Late Work: Absent or late work is not accepted or graded. No exceptions

Attendance: Active and early participation is vital to your success. Each student is accountable for all the information presented in class and should find an ally in case of absence or late arrival.

Guidelines from the undergraduate catalog indicate that if you miss more than a week of classes you are subject to a grade reduction; missing two weeks of classes will result in notification to the

Associate Provost and Records office, and possible withdrawal. Should an illness or personal reasons necessitate continued absence the *student* should officially withdraw.

Academic Integrity: All material submitted in fulfillment of course requirements must be done by the registered student. Cut and paste research, copying, substitute work, "wandering eyes", or sharing exams will result in a grade of zero and possible failure for the course.

Supplies: Additional information to be provided in class. A PDA or Cell Phone or Text Device is not to be used for class work or exams.

Resources: The text and class materials are the primary resources for the course. Often assignments will require effective use of the library and internet research.

Requirements: You are required to **immediately** seek clarification on any material that you do not understand. You are expected to maintain high standards of academic performance and courtesy and to comply with all CUH policies. Any disruptive behavior, inappropriate language or violations will result in expulsion from class (subsequent occurrence possible withdrawal from course).

Lab Safety Notes: (Presented in the first lab)

LAB SCHEDULE (May be adjusted according to resources and lab facilities)

Week	Experiment	Activity
1	Calorimetry	Specific Heat, Heat Capacity
2	Archimedes Principle	Bouyancy
3	Electric Charge on a Sphere	Repulsion of Like Charges
4	Electric Field inside a Conductor	Measuring Fields and Equipotentials
5	Ohmic and Non-Ohmic Resistors	Non Linear Voltage / Current
6	Series and Parallel Resistors	Circuit Laws
7	Two Loop Circuit	Loop and Junction Rules
8	Capacitor Transients	Exponential Functions
9	Alternating Current RC 1	Resonance
10	Alternating Current RC 2	Oscillations
11	Magnetic Fields inside a Solenoid	Measurement of Magnetic Fields
12	Gas Emission Spectra	Spectra Count
13	Refraction and Total Internal Reflection	Measurement of Refraction and Reflection
14	Focal Length of Lenses	Optical Rules and Measurements
15	Lab Reports Due	(may be graded weekly)