

## *Course Syllabus*

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PHYS 2126.121 PHYSICS LABORATORY II summer 2007

### **Professor Contact Information**

Instructor: Paul MacAlevey  
Office: FO 2.708B extension 4634  
E-mail: [paulmac@utdallas.edu](mailto:paulmac@utdallas.edu) I will send e-mail to UTD e-mail addresses only. Regulations prevent me from sending some information to any other e-mail address.  
Mailbox: in office FO 2.724

The section meets on Tuesday from 3:00 – 5:45.

TA: Delilah Whittington FO 1.432  
E-mail: [delilah.whittington@student.utdallas.edu](mailto:delilah.whittington@student.utdallas.edu)

### **Course Pre-requisites, Co-requisites, and/or Other Restrictions**

Any student enrolling in this lab class should either have done or be doing PHYS 2326 Electromagnetism & Waves

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**Office hours:** By appointment at my office.

### **Course Description**

The course includes experiments designed to explore several areas in Electricity and Magnetism. The experiments in this lab give you the opportunity to examine several phenomena in detail. As always in Physics, there is interplay between the theory that you see in a class and experimental work. One is not more important than the other but one informs the other: theoretical predictions are a natural focus of experiment and experimental results help to develop theory. That is why you need to study both.

Some labs involve the building of electrical circuits but this lab course is not an introduction to electric circuits. An understanding of electric current is important to an understanding of many electromagnetic phenomena and about half of the experiments develop knowledge about electric current. The others concern electrostatics, magnetic fields caused by currents and induction, etc.

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### **Student Learning Objectives/Outcomes**

Experiments concern electrostatics, electric current, magnetic fields caused by currents and induction. The aims of the course are to perform experiments in which:

- Students will explain observations of simple electrostatic phenomena in writing. Among these is that conductors must become polarized in the presence of charge.
- Students will draw graphs (on linear graph paper) of one quantity versus another. Both quantities will have been measured by the students. These graphs include graphs of current versus voltage (in resistive circuits) and graphs of voltage versus time in RC circuits)
- Students will compute time constants given changing voltages in circuits that involve resistors and capacitors.

### Required Textbooks and Materials

**You need a lab manual at every lab meeting of your section.** You can get a one at the campus bookstore for about \$11. (I have put material from the manual for the first meeting of your section on the WebCT sites for 2126. If you have difficulty getting a printed copy, then print from the WebCT site.)

### Suggested Course Materials

You should have a calculator, pencil and pen at all meetings of your section. (The calculator need only be a 'scientific' one.)

### Assignments & Academic Calendar

All students are expected to read the section headed 'introduction' before the lab meeting. This will help you to complete the Pre-Lab that is due at the beginning of every lab meeting (except the first one). The lab report consists of answers written to questions posed in the lab manual. Answers are to be written in spaces provided in the 'Report' section of the manual. The sheets are to be taken out of the manual, stapled and given to your TA before/at the end of each lab meeting. A detailed schedule appears in the lab manual.

This course is associated with PHYS 2326 (Electromagnetism and Waves) but may have a slightly different schedule. This means that you should expect to see some topics for the first time in this lab course. Lab time is limited so I am asking all students to read the introduction to each experiment and do the Pre-Lab in the week before the experiment. That gives plenty of time to ask questions during office hours before your lab meeting.

## Semester Calendar

Dates	Lab Exercise
May 15	Course information and Electrostatics I
May 22	Electrostatics II

May 29	Introduction to Multimeters & Power Supplies. Drawing Graphs
June 5	Electric Fields and Electric Potentials
June 12	Ohm's Law Experiment
June 19	Voltage Decay Across Capacitors
June 26	Introduction to Oscilloscopes
July 3	RC circuits & Breadboards
July 10	Magnetic Force Between Parallel Conductors
July 17	Motor Experiment
July 24	<i>No class scheduled</i>

### Grading Policy

There are no exams in this course. Your course grade is determined by grades on your lab reports. **It is important that lab reports are your own work.** Every individual student will turn in a lab report at every meeting of their section. (You will also turn in a pre-lab at all meetings except the first.) Lab reports must be turned in on the same day that any experiment is done in order to attract credit.

The activity on 'Drawing Graphs' carries a maximum mark of 24 points. Pre-labs carry a maximum of 6 marks while lab reports carry a maximum mark of 40 points. The average of these grades will be used to compute your numerical grade for this course. These numbers are turned into letter grades as follows. If  $x$  is a numerical grade then,

$x \geq 95$	A+	$70 > x \geq 65$	C+
$95 > x \geq 90$	A	$65 > x \geq 60$	C
$90 > x \geq 85$	A-	$60 > x \geq 55$	C-
$85 > x \geq 80$	B+	$55 > x \geq 50$	D+
$80 > x \geq 75$	B	$50 > x \geq 45$	D
$75 > x \geq 70$	B-	$45 > x \geq 40$	D-
		$40 > x$	F

### Course & Instructor Policies

The course policies for the current semester are in the current manual. Please refer to that source for more information.

### Student Conduct & Discipline

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained

in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

### **Academic Integrity**

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

### **Email Use**

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

### **Withdrawal from Class**

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork

to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

## **Student Grievance Procedures**

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

## **Incomplete Grade Policy**

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of **F**.

## **Disability Services**

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is:  
The University of Texas at Dallas, SU 22  
PO Box 830688  
Richardson, Texas 75083-0688  
(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

### **Religious Holy Days**

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

***These descriptions and timelines are subject to change at the discretion of the Professor.***