Course Syllabus

Course Information

PHYS 3342.121 PHYSICS FOR BIO SCIENCE II Summer 2006

Professor Contact Information

Dr. Paul MacAlevey; (972) 883-4634; paulmac@utdallas.edu; office hours are at my office FO 2.708B from 1:50 - 2:50 pm or by appointment Monday & Wednesday. I intend to use the inbox on WebCT 6 with which to send e-mail. I expect you to check this inbox at least once-a-day. (If you need help with your UTD computer account, please call 972 883 2911 or visit the helpdesk at JO 3.906.)

Teaching Assistant:

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

Pre-requisites: PHYS 3341 and MATH 2419

Co-requisite: PHYS 2126 (This Lab class is a separate course and begins in the week of May 15**.** This lab is not part of PHYS 3341 and perfect co-ordination between this course and that lab should not be expected.)

Required Textbooks and Materials

We will use **"University Physics" (eleventh edition) by Young & Freedman** (ISBN: 0-8053-8684-X). You will want at least volume 2 (on Electromagnetism and Optics. You must register for the homework Web Site; www.masteringphysics.com described below. (In the course of doing this, you will need to used the ID for the class. It is PMACALEVEY3342SUMMER2006. More instructions are given in a document that I have put on WebCT)

The last pages of this schedule can be cut up & stapled together to make flash-cards. You will need these in order to answer questions that I'll ask in class. Please have them ready for the class on Wednesday.

You will need a calculator for exams. You only need a 'scientific' one. Graphing calculators etc. are not allowed. You will also need a small ruler for drawing vectors and the paths of light rays.

Course Description

I anticipate that we will cover material in volume 2 of the textbook (on Electromagnetism and Optics). [I'll include material on Atomic structure and Nuclear Physics (from volume 3) only if time allows.] **Be sure to read the relevant sections before the lecture**! 10% of your final grade depends on the results of reading quizzes!

Physics has the reputation as a 'hard' subject. It may not be difficult for the reasons that you expect. There will be plenty of facts, equations and techniques to be remembered but I don't think that these are what make the subject difficult. Physics does require you to think about what you are doing and why you are doing it. Some people refer to this as 'critical thinking' and its unfamiliarity may be the most difficult thing about Physics.

Student Learning Objectives/Outcomes

- Students will calculate the force on a charged particle that is between the plates of a parallel-plate capacitor
- Students will us Coulomb's law to describe the effect of static charge on nearby substances
- Given a diagram of a converging lens, students will draw rays to explain how an image is formed.

Assignments & Academic Calendar

Some sections are explicitly skipped (to allow us time to reach other material). These are 24.5, 24.6, 25.6, 28.6, 28.7 28.8, 31.2 – 6, 35.3, 36.3, 36.7 and 36.8. Chapter 22 (Gauss' law) is skipped entirely. **You are responsible for all other sections of the chapters mentioned in this tentative schedule.** This holds even if I don't mention a particular item explicitly during a lecture. Again, the reading assignment is to be done before the date on which it is listed. Problems that are assigned will appear on MasteringPhysics along with the date on which the assignment is due.

Do the assignment called "Introduction to MasteringPhysics" tonight. There is no credit for doing this assignment. This assignment is set-up in order to show you how to use the site. It also shows you how to write vectors, Greek letters, subscripts, superscripts, mathematical constants and physical constants. This assignment introduces hints, serialized parts, randomized answers, Submit Answer, Submit Problem, the math display function, and the My Answers button.

Unless asked otherwise, give your answer correct to three significant figures. (Young & Freedman discuss significant figures in section 1.5.) As a rule-of-thumb, use four

significant figures (or more) in your calculations and round to three significant figures at the very end of the calculation.

Date	Reading assignment	Lecture material
Monday May 15	First meeting. None due.	Intro only
Wednesday May 17	Chapter 21	Electric Charge and …
Monday May 22		… Electric Field
Wednesday May 24	Chapter 23	Electric Potential
Monday May 29		*No class; Memorial Day*
Wednesday May 31	Chapter 24	Capacitance & Dielectrics
Monday June 5	Chapter 25	Current, Resistance and EMF
Wednesday June 7		**First Midterm Test** – chapters 21 to 24
Monday June 12	Chapter 26.1 to 26.3	D.C. Circuits
Wednesday June 14	Chapter 26.4 to 26.5 Chapter 27.1 to 27.5	D.C. Circuits Magnetic Fields and Magnetic Forces
Monday June 19	Chapter 27.6, 27.7 and 27.9	Finish Magnetic Fields and Magnetic Forces
Wednesday June 21	Chapter 28	Sources of Magnetic Field
Monday June 26	Chapter 31.1 only	Alternating Current
Wednesday June 28		**Second Midterm Test** –chapters 25 to 28 and 31
Monday July 3	Chapter 33	Nature and propagation of light
Wednesday July 5	Chapter 34	Geometrical Optics and Optical Instruments
Monday July 10	Chapter 35	Interference
Wednesday July 12		*No class!*
Monday July 17	Chapter 36	Diffraction
Wednesday July 19	Chapter 36	Diffraction
Monday July 24		**Third Midterm Test** –chapters 33 to 36
		Final Exam - Comprehensive (The University decides on the time for final exams. While I don't think that this time will be changed, you should check the UTD Web site just in case. Inform the registrar about any conflicts with the times for other exams etc.)

Grading Policy

Reading Quizzes		10%
Homework		15%
3 midterm Exams @ 20% each Drop one	40%	
Final Exam		30%
Intangibles		5%

"Intangibles" include completion of reading quizzes and quality of summaries

A grade scale that I have used in a previous semester is as follows: If x is a numerical grade then,

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

Course & Instructor Policies

Reading quizzes cannot be made up (except as noted below). They will be given at random intervals during most classes. **Students must be in their assigned seats for these quizzes**. Exams can only be made up if I am given adequate written reasons as to why the absence occurred.

Homework will appear on the Mastering Physics website along with a due date/time. Homework done on or before the time it is due will be graded out of 100% of the marks available. After this time, the credit falls (linearly) to 40% of the available points over a period of two weeks = 336 hours.

Students must be in their assigned seats and must have either a UTD student card or government ID with them for all tests.

All tests will be done with books closed. Scientific calculators are often needed for tests or exams and it is up to you to have one. You can bring a single $3" \times 5"$ index card to any of the tests (and can write on both sides of it). It must have been prepared by the person using it and be written by hand. All other books, notes, backpacks, purses, electronic devices (other than a scientific calculator) are to be placed at the sides of the room during the exam.

Any (academic) questions concerning the grading of a test must be brought to my attention before the end of the next day on which we meet. After this time, no grade will be changed for any academic reason.

Any student INVOLVED in cheating will be reported to the Dean of Students. That Dean will decide on the penalty for a confirmed incident of cheating. Please see the syllabus for a more comprehensive statement on scholastic dishonesty.

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 deal 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.