

PHYSICS 1444-001 Summer 2009

Days: MoTuWeTh **Time:** 10:30 a.m. – 12:30 p.m. **Room:** 129 Science Hall

Text Book: Douglas C. Giancoli "PHYSICS FOR SCIENTISTS & ENGINEERS"

Fourth Edition, Pearson Prentice Hall

Instructor: Prof. N. G. Fazleev

Class Unique Number: 77444

Prerequisite: PHYS 1443 and MATH 2325 or 2425 or concurrent enrollment.

Course Contents: PHYS 1444 is the second half of a two semester technical course that covers basic physics: the study of physical phenomena in the fields of electricity, magnetism, light, and optics. The course is designed for science and engineering majors and utilizes calculus. There is a companion lab course which is to be taken concurrently.

Student Learning Outcomes

Students will:

1. know basic physics principles and concepts, have a thorough knowledge and comprehension of fundamentals of electricity, magnetism, light, and optics.
2. be able to answer qualitative and quantitative problems in electricity, magnetism, light, and optics.
3. develop skills that can be applied to a variety of situations. These skills will include the following:
 - (a) Presentation skills. Students will be able to express in writing their understanding of core physical principles, the results of experiments, and their analysis of physical problems.
 - (b) Laboratory skills. Students will be able to set up an experiment, collect and analyze data, interpret their result, and draw meaningful conclusions from the experiment.
 - (c) Problem-solving skills. Students will to be able to integrate their knowledge with critical thinking skills in order to become problem solvers. They will be able to identify the essential aspects of a problem and formulate a strategy for solving the problem. They will be able to apply appropriate methods to arrive at a solution, interpret their result.
4. be able to apply physics knowledge to analyze new situations.
5. be prepared to study other subjects that require on a prior knowledge of physics.

Course Schedule

Assignments and due dates are subject to change; it is therefore important to attend class in the event that the course schedule has altered. Bring your syllabus to each class because we will refer to it throughout the semester.

Date	Chapter	Class Activity	Problem Assignment	
July	8	21	Electric Charge and Electric Field	HW 1
	9	22	Gauss's Law	HW 2
		23	Electric Potential	
	13	23, 24	Electric Potential; Capacitance, Dielectrics	HW 3

Census Date is July 13

Make certain you are enrolled in lecture and lab sections!

	14	25	Electric Currents and Resistance	HW 4
	15	26	DC Circuits	HW 5
	16	27, 28	Magnetism; Sources of Magnetic Field	HW 6
	20	28	Sources of Magnetic Field; Review for Exam I	

July	21		Exam I	Ch. 21-28	
	22	29	Electromagnetic Induction and Faraday's Law	HW 7	
	23	30	Inductance, Electromagnetic Oscillations, AC Circuits	HW 8	
	27	30, 31	AC Circuits; Maxwell's Equations and Electromagnetic Waves	HW 10	
	28	31, 32	Electromagnetic Waves; Light: Reflection and Refraction	HW 11	
	29	32	Light: Reflection and Refraction		
	30	33	Lenses and Optical Instruments	HW 12	
Aug.	3	34	Lenses and Optical Instruments; The Wave Nature of Light; Interference	HW 13	
	4		The Wave Nature of Light; Interference		
	5		Diffraction and Polarization	HW 14	
	6		Diffraction and Polarization		
Aug.	10		Catch - up and Review		

Aug.	11	Final Exam	Ch. 31-35	10:30 a.m. - 12:30 p.m.
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Exams:

There will be one exam given during the regular class period and a final exam. These exams will include concept questions as well as problems like those in the text and the homework. Students must take the exams in class on the days listed. A missed exam cannot be made up unless a request was made to an instructor before the scheduled exam. A makeup will be granted only in cases of documented illness, family emergency, or UTA athletic competition out of town.

The final exam will be held on Tuesday, **August 11, 10:30 a.m. - 12:30 p.m.**

Exam Rules:

Exams will be closed book. You may not use notes or other aids. Students should not talk or communicate in any way with each other during exams.

Exams will be formatted so that there is adequate scratch space for your calculations, but if you need more scratch paper, request it from the instructor.

You must enter your name and your ID number on the exam sheet. You must also record the section unique number and provide your signature. You may be asked to show your ID.

Grading : Course average = $(T_1 + L + F + H) / 4 + E$

where **T** is a regular exam score, **L** is the lab average, **F** is the final exam score, **H** is the homework score, and **E** is the score for extra work. Partial credit will be given on exams. Letter grades will be assigned to a curve, but scores in the ranges below assure a minimum grade shown:

A	90 – 100
B	80 – 90
C	70 – 80
D	60 – 70
F	00 – 60

X	Arrangement at the end of semester
P	Arrangement at the beginning of semester

Homework: This is the most important activity you engage in to learn this course material. Homework in this course has the same weight as the regular exam. Problems will be assigned and graded on the Web.

We will be using the improved version of the UT homework system, called Quest. Each student must obtain or can reuse an existing UT EID and password and also sign up for the course itself using the Course Unique Number **77444**

1. To Get a UT login account:

- a. Go to <https://quest.cns.utexas.edu/student>
- b. Select the link “Get Started”
- c. Select the link “I need a UT EID”
- d. Select the link “Get a UT EID”
- e. Follow the instructions to get a UT EID. Once you get this ID, write it down in a safe place for you to keep.

2. To Register as a student in this course:

- a. Go back to <https://quest.cns.utexas.edu/student> and again click “Get Started”. Then type in your new login information.
- b. Click on “Enroll in a new course”.
- c. Enter your class ID # 77444.
- d. Click “Request Enrollment” on the verification page. You may now log out. Once you have requested enrollment I will need to “accept” you into the class. After this has been done, you will officially be in the class and can download your homework.

3. To Download your homework

- a. Go to <https://quest.cns.utexas.edu/student> . Click Get Started and enter your login information.
- b. Click on your course link.
- c. Click on HW 1 to access your first homework.
- d. Click the print icon in the smaller window to print your homework assignment.

4. Homework collection

Submit your homework solutions on the Web through the Homework Service. The Due Date and cut-off time are on the homework.

Solutions: Solutions to problems are available after the cut-off time on the Web.

Records: A grade report for each homework is available on the Web after the cut-off time.

Bookmark these URLs:

UT EID Registration, Passwords, Problems: https://idmanager.its.utexas.edu/eid_self_help/

Quest Student Login (Univ. of Texas): <https://quest.cns.utexas.edu/student/main>

UT Help Desk email request form: <http://www.utexas.edu/its/help/forms/mailform.html>

Study Suggestions:

Students are responsible for assigned sections of the text even if they are not covered in class, and they are responsible for material covered in class even if it is not in a section of the text. Homework will typically involve questions on upcoming material, and so you should have read the material to be covered in class before coming to class. Coming to class with questions prepared is strongly encouraged. Start working on your homework as soon as it is available and turn your work in as soon as you have completed your work (you get multiple tries for missed questions). **Get help if you have trouble understanding the material.** The importance of doing the homework assignments (*and understanding them*) can not be overemphasized. Also, you should work the problems at the end of the chapter, looking for particularly interesting ones to solve in addition to those which you have done for homework. Exam problems will resemble the homework problems. It is okay to discuss the homework with other students and to work on it with them. However, it will be **most useful** to you if you always generate your own answers.

One piece of advice: Do not get behind. It is important to understand the material that is being presented now in order to understand the material that will be presented later. If you get behind, it will be very difficult for you to catch up.

Getting Help:

Attend regularly Physics Clinic and ask questions. TAs from Physics Clinic are available regularly for coaching in Science Hall. Check the bulletin board outside Room 108 SH for listing of TA's coaching schedules. (By the way, even if you are not having difficulties with the course material, you should attend Physics Clinic regularly, at least once per week.)

See an Instructor during his office hours. Office hours are **1:00 pm - 2:00 pm, TuTh.**

See an Instructor outside scheduled office hours. To do this, please make an appointment first.

Attendance:

Attendance is required. Attendance will be taken regularly at all classes and exams. Absences should be discussed with the instructor - preferably, before they occur.

Grade Replacement:

If you are retaking this course in order to replace a previous grade, you must complete the necessary form by census day. The forms required are located at the Bursar's Office in Davis Hall. If you do not complete the forms by census day, the University will not honor the replacement.

Drops:

Students wishing to drop this class or resign from the university during the semester must do it themselves, but should consult the instructor in advance to determine the course grade to be reported. If you drop this class, do it officially through the Registrar; do not simply stop attending and taking exams. Students who drop the class unofficially force the instructor to assign a course grade of "F".

Drop for Non-Payment of Tuition:

If you are dropped from this class for non-payment of tuition, you may secure an Enrollment Loan through the Bursar's Office. You may not continue to attend class until your Enrollment Loan has been applied to outstanding tuition fees.

Academic Dishonesty:

It is the philosophy of The University of Texas, Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

“Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or part to another

person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.”

Disabilities:

The Univ. of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public law 93112-The Rehabilitation Act of 1973 as amended. With the passage of new federal legislation entitled Americans with Disabilities Act - (ADA), pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens. As a faculty member, I am required by law to provide “**reasonable accommodation**” to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with **informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.**

Student Support Services Available:

The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.

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Office Hours:

Chemistry&Physics Building, Room 336

1:00 - 2:00 TuTh or by appointment.

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