



Physics 208: Electricity, Magnetism, and Light

This is a calculus-based course, primarily for engineering students. The prerequisites are therefore Mathematics 152 or 172, or registration therein, as well as Physics 218.

MW 8:00 - 9:15 a.m., QENG 116 [Spring Semester, 2012]

Instructor: Roland E. Allen

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website: <http://faculty.physics.tamu.edu/allen/Physics208-Qatar.html>

Office location: Room 319 D

Telephone number: 4423-0549

Office hours: Sunday 11:00-12:00 a.m., Monday 9:30 – 10:30 a.m., Tuesday 10:00-11:00 a.m., Wednesday 10:30 – 11:30 a.m., or by appointment.

Please come to the office hours **prepared for an efficient and effective interaction**, so that your time is not wasted. These are not tutoring sessions. They are instead supposed to be opportunities for you to ask about the issues that you do not understand. We need to be focused and efficient in order to make our way through the large number of important topics.

Learning Outcomes or Course Objectives: In order to complete this course with a passing grade, each student must display mastery of the topics covered at the level required of a professional engineer.

This material is that contained in Chapters 21-36 of the textbook, University Physics. It is important in every area of engineering, since it provides a foundation for a fundamental understanding of chemistry, materials, electronics, etc.

Recitation M 2:00-2:50 p.m. in QENG 115, laboratory M 3:00 - 4:50 pm in QENG 356E.

Attendance in all lectures, recitations, and laboratories is, of course, quite important.

PHYSICS 208: ELECTRICITY, MAGNETISM, AND LIGHT

Prerequisites	You should have completed Math 151 and be currently enrolled in Math 152. You should have also completed a semester of Mechanics (Physics 218 or the equivalent). Students are expected to have a working knowledge of plane and solid geometry, trigonometry, algebra, vectors, differentiation, and integration.													
Textbook	University Physics, 13th Edition, Volume 2, by Young and Freedman. You will also need the laboratory manual, by Maya Abi Akl.													
Recitation and Lab	Recitations meet in QENG 115 for the first hour, and then proceed to the laboratory in QENG 356E for the next two hours. Students retaking the course should notify the instructor, to get credit for any lab previously completed. Note: Students retaking the course must attend the weekly recitation and take the weekly quizzes.													
Recitation and Homework	Each exam will have problems based on the lectures, homework, and recitations. Recitation is a problem-solving session, where the recitation instructor will work problems and answer questions.													
Exams	Exams will generally consist of problems similar in content and difficulty to the material covered in the lectures, homework, and recitations. These problems will be workout type; the entire solution will be graded, and partial credit given for partially correct solutions. Your work must be shown - the answer alone is not sufficient. You will be supplied with a standard formula sheet for each exam. You must also bring a calculator to the exams. The Final Exam is comprehensive. We also ask that you bring your student ID along with you to all exams for identification purposes.													
Course Grade	<table border="1"> <tr> <td>Exam 1</td> <td>20%</td> </tr> <tr> <td>Exam 2</td> <td>20%</td> </tr> <tr> <td>Exam 3</td> <td>20%</td> </tr> <tr> <td>Final Exam</td> <td>25%</td> </tr> <tr> <td>Laboratory</td> <td>10%</td> </tr> <tr> <td>Homework</td> <td>5%</td> </tr> </table>	Exam 1	20%	Exam 2	20%	Exam 3	20%	Final Exam	25%	Laboratory	10%	Homework	5%	<p>You must pass the laboratory (as well as the whole course) in order to receive a passing grade. In the case of improvement on the final exam, an alternative grading scheme is available. This allows the final to count 40% toward the final grade, with the 3 exams counting 45% (instead of 60%), and the lab and homework still counting a total of 15%. All students' final grades will be calculated using these two methods, and the higher of the two will be your course grade.</p>
Exam 1	20%													
Exam 2	20%													
Exam 3	20%													
Final Exam	25%													
Laboratory	10%													
Homework	5%													

Last day for adding/dropping courses with no record for the spring semester:
Sunday, January 22, 2012, 4:00 PM. Office of Records, 119C.

Last day for all students to drop courses with no penalty (Q-drop):
Sunday, April 1, 2012, 4:00 PM. Office of Records, Academic Advising Office.

SCHEDULE

WEEK OF	CHAPTER
January 16	21 - Electric Charge and Electric Field
January 23	22 - Gauss's Law
January 30	23 - Electric Potential
February 6	24 – Capacitance and Dielectrics
	Exam 1 Chapters 21 – 23
February 13	25 – Electric Current, Resistance, and EMF
February 20	26 – DC Circuits
February 27	27- Magnetic Fields and Magnetic Forces
March 12	28- Sources of Magnetic Field
	Exam 2 Chapters 24 – 27
March 19	29 - Electromagnetic Induction
March 26	30 – Inductance
April 2	32 – Electromagnetic Waves
April 9	33 – The Nature and Propagation of Light
	Exam 3 Chapters 28, 29, 30, 32
April 16	35 – Interference
April 23	36 – Diffraction

Other Pertinent Course Information:

You may wish to see the website for an earlier version of this course. (with a different edition of the textbook) at <http://faculty.physics.tamu.edu/allen/Physics208.html> . The exams there will give you some idea of the format and level of difficulty of our exams, **but they are not practice exams.**

The exams in our course will consist of a different sample of the many topics that we will cover, So in studying for exams in our course, you will want to master all the topics covered in class and in the homework, and certainly **not just the topics represented in these old exams.**

Our exams will cover only what we do in class and what is done in recitation and the homework.

The fact that the material is limited in this way means that you should be able to master it thoroughly. **If you work hard, you should find this a pleasant and interesting course!**

You may want to read, on p. xi of the textbook, “How to succeed in physics by really trying”. For example, **you will need to schedule for yourself many hours of study time in a quiet place.** And you will need very careful time management. But you may also find it helpful to work with another student, or to form larger study groups.

As is conventional, about half the problems for the semester are listed below as homework problems, and roughly an equal number will be covered as recitation problems.

Physics 208 - homework problems

chapter	exercises and problems
21	15, 31, 38, 43, 64, 98
22	4, 6, 10, 19, 21, 47
23	5, 19, 25, 31, 63, 70
24	5, 13, 22, 27, 32, 63, 66
25	7, 30, 33, 66, 68, 79
26	13, 16, 26, 33, 43, 49, 66
27	8, 21, 44, 53, 80
28	4, 15, 23, 31, 37, 42, 45, 80
29	6, 16, 24, 27, 53, 54
30	2, 12, 19, 25, 38, 64
32	6, 11, 15, 19, 41
33	13, 22, 29, 48, 58
35	6, 17, 24, 33, 55
36	1, 15, 23, 30, 47

The following statements are requested for all Texas A&M University syllabuses.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit <http://disability.tamu.edu>

Academic Integrity

For additional information please visit: <http://aggiehonor.tamu.edu>

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”