SYLLABUS

208 STEPS — Electricity and Magnetism

Spring 2010

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Texas A&M University

Welcome

Welcome to Physics 208. This is the second semester of an introductory course in Physics. The topics covered this semester are charges and electric fields, electric currents, magnetism, induction, and electromagnetic waves. You will find that a lot of concepts are very similar to those you studied in your previous 218 Mechanics course.

Important Information

Class Webpage:
The official webpage is `http://cyclotron.tamu.edu/fries/teach`
There is also a website in WebCT; go to `http://elearning.tamu.edu` and log in. You will also find a link to webCT on the class webpage. Homework submission will be through webCT. **Make sure that you can log on to webCT and see the 208 section.**
Please check the class webpage *regularly* for news!
Instructor:
Dr. Rainer Fries
Office: MPHY 309
Office hours: Mon, Wed 2.40 – 4.10 or by appointment
Email: rjfries@comp.tamu.edu
Class times:
Mon, Wed, Fri 1.50–2.40 pm, Room MPHY 205
3 Common Midterm Exams:
February 16, March 23, April 20, time and rooms TBA
Final exam:
TBA

Required Material

The textbook is: *Don't Panic* by William H. Bassichis; A Guide to Introductory Physics for Students of Science and Engineering, Volume II, Electricity and Magnetism, 5th edition.
You will also need a pocket calculator. There is no lab manual to buy. Lab material will be handed out when needed.

About the Class

The pace of this course should allow you to understand the material in depth, but it does move right along. **Don't fall behind. It is extremely difficult to catch up and the longer you leave it the harder it gets.** You need to actively participate from day one! Here are a few musts:

- Take your reading assignments seriously and read the textbook thoroughly before coming to class. Take notes!
- **Always** work on the assigned homework problems. Even if you think you understand the book and the lecture, you have to practice problem solving! It is also the best way to prepare for exams.
- If there are questions, get help! Discuss with other students, ask any TA, go to the helpdesk, or come to my office hours.

Tentative Class Schedule:

Week	**Topic**	**Chapter**	**Other**
1: Jan 18	Mechanics Review, Coulomb's Law	1	
2: Jan 25	Electric Forces and Fields	1, 2	
3: Feb 1	Electric Potentials	3	
4: Feb 8	Gauss Law I	4, 5	
5: Feb 15	Gauss Law II, Capacitors	5, 6	EXAM I
6: Feb 22	Current, Ohm's Law	7	
7: Mar 1	Joule's Law, Circuits I	8	
8: Mar 8	Magnetic Fields I	9	
9: Mar 15	*Spring Break*		
10: Mar 22	Magnetic Fields II , Ampére's Law I	9, 10	EXAM II
11: Mar 29	Amperére's Law II, Inductance I	10, 11	
12: Apr 5	Inductance II and Circuits II	11, 12	
13: Apr 12	Circuits III	12	
14: Apr 19	Maxwell Equations, Electromagnetic Waves I	13	EXAM III
15: Apr 26	Electromagnetic Waves II	13	
16: May 3	Review		

We will require that you always use and communicate a logical and organized problem solving technique. *In exams you will get very few points for just giving the correct answer with no working for the problems.* We assume that you have a good knowledge of algebra, geometry, trigonometry, and differential and integral calculus. More mathematical techniques will be introduced when needed. **It is important that you have a good grasp of the topics introduced in your Mechanics class. You'll need many of these concepts again.**

Homework

Homework will be assigned weekly. Homework problems will be graded and enter you course grade. There is only a small selection of problems and exercises with each chapter of the book. **You should work on all of them.** You are expected to work all of the homework problems before each recitation. Short quizzes might be given during recitation sessions to test your ability to solve problems similar to the assigned homework. There might also be quizzes any time in class.

Recitation and Laboratory

Recitation sessions meets in MPHY 334. They are usually followed by Laboratory sessions in MPHY 212. Note that you have to pass the Lab separately with at least 70% of the score in order to receive a passing grade for the course. The lab grade is based on attendance and the contributions you make during lab sessions.

The laboratory involves teamwork. Therefore no laboratory makeup will be allowed except in situations officially recognized by the University. Please contact your instructor ahead of time.

Sec	**Recitation**	**Lab Time**	**TA**
526	Tue 8 – 8.50 am	Tue 9 – 10.50 am	Nara Altangerel
813	Tue 11.10 am – 12	Tue 12.10 – 2 pm	Cade Perkins
814	Tue 2.20 – 3.10 pm	Tue 3.20 – 5.10 pm	TBA
815	Tue 4.55 – 5.45 pm	Tue 5.55 – 7.45 pm	Daniel Cruz

Exams

Three Midterm Exams will be held at the times and dates given above. No books or notes are allowed in the exams unless authorized by the instructor beforehand. Your answers must show the steps toward the solution and the solution must be correct in order to receive the full score. If a solution is given without justification zero or little credit will be given.

If you miss an exam or the final, only officially excused absences will be accepted. In this case you have to contact the instructor as soon as possible.

Grades

The course grade will be determined from the various components of the course in the following way:

(a) Homework and Quizzes will count 15%.

(b) The laboratory will count for 5%.

(c) The midterm exams together will count 45%

(d) The final will count 35%

You can replace your lowest midterm score with your final score. This is done automatically if it improves your class score. You can replace only one midterm score by the final.

ADA Policy

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 special accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room B118 of Cain Hall or call 979-845-1637.

Your Responsibilities

Texas A&M University assumes that all students enroll in its programs with a serious learning purpose and expects them to be responsible individuals who demand of themselves high standards of honesty and personal conduct. All students are expected to behave at all times with respect and courtesy toward their fellow students and instructors and are to have the highest standards of honesty and integrity in their academic performance. Any behavior which disrupts the classroom learning environment or any attempt to present work that the student has not actually prepared as their own work, or to pass an examination by improper means, is regarded as a serious offense. The minimum penalty for such an offense is a failing grade for this course. Aiding and abetting the above behavior is also considered a serious offense resulting in equally severe penalties.

The Aggie Honor Code: An Aggie does not lie, cheat or steal or tolerate those who do.

Further information regarding the Honor Council Rules and Procedures may be found on the web at `http://www.tamu.edu/aggiehonor`.