

Physics 316: Electricity and Magnetism Spring 2016

INSTRUCTOR:	John Keto Office RLM 10.315 keto@physics.utexas.edu
OFFICE HOURS:	M 1:15-2:15, Th 2-3pm
CLASS:	TTh 12:30-2 pm Meets PAI 4.42 Unique # 55690
TEXT:	<i>Physics for Engineers and Scientists Vol II 3rd Edition</i> By Ohanion and Markert
PREREQUISITES:	Physics 301 or equivalent.
TA and LA:	TA:Prabhat Bhattarai prabhatb@physics.utexas.edu ; LA: to be announced. Discussion session hours to be arranged; class rooms will be announced later. Both the TA and LA will hold problem sessions.
UT CORE CLASS:	This course may be used to fulfill three hours of the natural science and technology (Part I or PartII) component of the university core curriculum and addresses the following four core objectives established by the Texas Higher Education Coordinating Board: communication skills, critical thinking skills, teamwork, and empirical and quantitative skills. As part of advancing critical thinking Electricity and magnetism clearly demonstrates the power of the scientific method of philosophy. While observations for mechanics is observed in everyday life, electricity and magnetism is not. Our understanding of the electric force comes from hypothesis, careful experimental design and testing which leads to new knowledge. We also will use skills in mathematics through calculus to make quantitative predictions for experimental behavior. Your communication and teamwork skills will be improved in laboratory experiments, lab reports, and the explanation of homework problems.
HOMEWORK:	The assignments listed in the syllabus are part of your grade. Problems are assigned for each lecture. A general US wide rule of thumb is that you should expect to do 3 hours of preparation outside of class for each hour of lecture in a math or quantitative science class. Because of the large class size, I will be using the CNS computerized homework and exam service. Go to https://quest.cns.utexas.edu and use

your utedid to logon to the system. Problems will “open” at 6 am the day of lecture. All problems will be due at 0100 (1 am) before the next lecture. The system will give you no credit for late homework. I have no choice in the latter—it is hard coded.

This course makes use of the web-based Quest content delivery and homework server system maintained by the College of Natural Sciences. This homework service will require a \$30 charge per student for its use, which goes toward the maintenance and operation of the resource. Please go to <http://quest.cns.utexas.edu> to log in to the Quest system for this class. After the 12th day of class, when you log into Quest you will be asked to pay via credit card on a secure payment site. You have the option to wait up to 30 days to pay while still continuing to use Quest for your assignments. If you are taking more than one course using Quest, you will not be charged more than \$60/semester. Quest provides mandatory instructional material for this course, just as is your textbook, etc. For payment questions, email quest.fees@cns.utexas.edu.

To get onto the system go to <http://quest.cns.utexas.edu> and use your utedid to logon. Problems will “open” at 6 am the day of lecture. Problems will be due at 0100 (1 am) before the next lecture. The system will give you no credit for late homework. I have no choice in the latter—it is hard coded.

Homework counts as one exam. All homework point totals will be normalized to 100 points. The TA/grader will hold discussion sections to help you with the homework. There will also be coaching on the 5th floor of RLM. The graduate student coaches should be able to help you and are available for hours throughout the day.

If the coaches cannot help, please bring questions to me.

DO THE HOMEWORK. You will get little out of the course if you do not. I find there is near unit correlation between homework and exam grades.

EXAMS:

3 in class exams and 1 Final. The exams will be given 7-9 pm in a room to be announced. The dates of these exams were announced in the course schedule and are Feb. 17, Mar. 23, and Apr. 20. Exams will not be arranged at other times. The exam dates were chosen by the dept. If you miss an exam for any reason, that exam will be dropped. Exam grades are the average of your highest two exams. There will be no make-up exams. Your final grade will be an average of the final(35%), two exams(40%), homework (20%) and discussion attendance (5%).

If you cannot make any exam now, you should drop PHY316!

DROP DATES:

The last date to drop the course with a possible refund is **Feb. 3, 2016**. The last day to drop a class except for urgent and substantiated nonacademic reasons is **April 4, 2016**. If you become seriously ill or have other personal problems I encourage you to appeal for a drop for non-academic reasons. Do not let such circumstance

s generate a poor grade on your transcript.

DISABILITIES:

Please notify me of any modification/adaptation you may require to accommodate a disability-related need at the beginning of the semester. You are requested to provide documentation in order that the most appropriate accommodations can be determined. Specialized services are available on campus through Services for Students with Disabilities.

"The University of Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471- 6259, 471-6441 TTY."

SCHOLASTIC DISHONESTY: Will not be tolerated. What is permissible:

Homework--conferring with others is allowed, but what you submit must be your own work (not copied).

Exams: Simple, non-programmable calculators are required for the exams. Any exchange of information is not allowed. Prior knowledge of exam questions is also not allowed.

Outline for Physics 316

Chapter 22:	"Electric Force and Coulombs Law"
Jan. 19, 21	Problems: HW1
Chapter 23:	"Electric Field"
Jan. 26, 28	HW2, HW3
Chapter 24:	"Gauss' Law"
Feb. 2, 4	HW4, HW5
Chapter 25:	"Electric Potential"
Feb. 9, 11	HW6, HW7
Chapter 26.1, 26.2:	"Capacitors"
Feb. 16	HW8

EXAM Feb. 17 covering Chapt 22-25

Chapter 26.3:	"Dielectrics and Energy Storage"
Feb. 18, 23	HW9, HW10
Chapter 27:	"Currents and Ohm's Law"
Feb. 25	HW11
Chapter 28:	"DC Circuits"
Mar. 1	HW12
Handout: Mar. 3, 8	"Loop equations and nodal equations"
	Problems: 4 problems on handout.
Mar 10	HW13

Spring Break March 14-19

EXAM Mar. 23 covering Chapt 25-28

Chapter 29.1, 29.2:	"Magnetism"
Mar. 22	HW14
Chapter 29.3-29.5:	Magnetic Field of Current: "Biot Savart and Ampere's Law"
Mar. 24, 29, 31	HW15, 16, 17
Chapter 30.1-30.3	Magnetic force on moving charges
Apr. 5	HW18
Chapt 30.4, 30.5	"Magnetic Properties of Materials"
Apr. 7	HW19
Chapter 31:	"Faraday's Law of Induction"
April 12, 14	HW20, 21
Chapter 31.4:	"Inductance"
April 19	HW22

EXAM April 20 covering Chapt. 26-31

Chapter 31.4:	"Inductance" continued
April 21	HW23

Chapter 32:

Apr 26,28

Chapter 33:

May. 3

Review & Questions: May 5

"AC Circuits"

HW24, 25

"Maxwell's Equations, E&M Waves"