Department of Physics Winter 2010 Physics 1B Jan 5, 2010 Electricity and Magnetism (Concurrent enrollment in Physics 1BL is required)

Instructor: Professor Robert Dynes rdynes@ucsd.edu Office: 3561 Mayer Hall Office hours: Tues and Thurs 2-3pm

TA: Stephen Smith ssmith@physics.ucsd.edu

Course Coordinator:

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Lectures:

TuTh	12:30p - 1:50p	YORK	2722

Problem discussions:

РВ	01/11/2010	М	7:00p - 8:50p	LEDDN	AUD
РВ	01/18/2010	М	7:00p - 8:50p	LEDDN	AUD
РВ	01/25/2010	М	7:00p - 8:50p	LEDDN	AUD
РВ	02/01/2010	М	7:00p - 8:50p	LEDDN	AUD
РВ	02/08/2010	М	7:00p - 8:50p	LEDDN	AUD
PB	02/15/2010	М	7:00p - 8:50p	LEDDN	AUD
PB	02/22/2010	Μ	7:00p - 8:50p	LEDDN	AUD
PB	03/08/2010	Μ	7:00p - 8:50p	LEDDN	AUD
Final Exam:	03/16/2010	Tu	11:30a - 2:29p	TBA	ТВА

Course Format: This is the B portion of the Physics 1A-1B-1c and covers the Electricity and Magnetism portion of this series. My goal is that you come out of this course actually thinking physics is neat. You don't have to be a geek to believe this. Electricity and magnetism that you learn in this course makes contact with everyday observations and you actually might even like it.

Help is available if you feel confused. Problem sessions are available on Monday evenings from 7-8:50 pm and I would strongly recommend that you attend them. It is an interactive time to develop insight. My office hours are listed above.

Homework assignments: Problem sets at the end of each chapter are good exercises. This is the best way to learn. Some of the problems will be worked out in the evening problem sessions. I would encourage you to work out the problems before the problem sessions. Find someone or a group to work with on these problems. It is easier to think together. Don't be fooled into believing you understand this stuff if you don't work out the problems ahead of the problem sessions. I have seen this mistake too often. I have made it myself.

Quizzes: There will be quizzes on the prior work on Jan 14, Jan 28, Feb 11, and Feb 25. The overall quiz grade will be calculated from the best 3 out of 4 grades. There will be no make-up quizzes. You can throw out 1 quiz grade. You must bring your own scantron forms for the quizzes and a #2 pencil to the quizzes.

Grading Policy quizzes 60% (best 3 of 4) Final exam 40%

Add/Drop Last day to add a class: Friday, January 15 Last day to drop a class w/o a W and change grade option: Friday,

January 29

Last day to drop a class w/o an F: Friday, March 5

Please see Sharmila Poddar in the Physics Dept student affairs office in Mayer Hall 2nd floor.

Academic Honesty: Many of you are studying this course to prepare for a career in medicine. Others will be in other professional or business careers. If you are tempted to cheat...don't. If someday I have to rely on your integrity if I am going to surgery, or investing in a business, I do not want to look at someone who cheated in college. I will be tough.

See" UC Policy on Integrity of scholarship" in the UCSD General Calendar/

Labs: Concurrent Labs Starting the same week. For questions, contact the lab instructor.

Prerequisites: Physics 1A and 1AL and prior or concurrent enrollment in Math 10C-D or 20C

Approximate Lecture Schedule. This is only approximate. I will try to keep this schedule but with quizzes taking a lecture time and some concepts take more time to teach, I will probably not rigidly maintain this schedule.

- Week 1 (Jan 4-8) Chapter 15 Charges, Coulomb's Law, Electric Fields
- Week 2 (Jan 11-15) Chapter 16 Gauss' Law, Electric Potential, Quiz on Jan 14
- Week 3 (Jan 18-22) Chapter 16 Equipotentials, Capacitance, Energy
- Week 4 (Jan 25-29) Chapter 17 Capacitor combinations, Electrical Current, Quiz on Jan 28
- Week 5 (Feb 1-5) Chapter 17 Ohm's law, Superconductivity, Energy and Power
- Week 6 (Feb8-12) Chapter 18 Simple circuits, Kirchoff's law, RC circuits. Quiz on Feb 11.
- Week 7 (Feb 15-19) Chapter 19 Magnetism, Magnetic fields around currents. Magnetic forces on moving charges(currents).
- Week 8 (Feb22-26) Chapter 19 Ampere's law, electrical torque, Quiz on Feb 25
- Week 9 (March 1-5) Chapter 20 Magnetic Flux, Induced emf. Lenz' law, RL circuits
- Week 10 (March 8-12) AC circuits, electro-magnetic waves

Final Exam: March	Tu	11:30a - 2:29p	TBA	
16				