Fall 2009 **Syllabus** **September 24, 2009**

PHYSICS 100A

INSTRUCTOR C. M. Surko; csurko@ucsd.edu
Office: 4581 Mayer Hall Addition; 534 6880
Office Hour: Fri. 2:00-3:00 pm, after class, or email/call to arrange

GRADER Zhoushen Huang, zhohuang@physics.ucsd.edu

DISCUSSION SESSIONS Jordan Gosselin, jgosselin@physics.ucsd.edu

COURSE SCHEDULE:

Lectures:	MWF	10:00 – 10:50 am	CSB 002
Group office hour/discussion	Tu	3:00 – 4:00 pm	MHA 2623
Midterms Oct. 21 & Nov. 16		10:00 – 10:50 am	CSB 002
Final Exam Dec. 11	F	8:00 – 11:00 am	CSB 002

COURSE WEB PAGE: See the course web page for changes and updates:
http://physics.ucsd.edu/students/courses/fall2009/managed/physics100a/

GRADING: Two midterms, 23% each; final 44%. The homework will be graded and count a maximum of 10%, with the maximum calculated as 0.1 × (your total weighted exam score in percent).

COURSE TEXT: *Introduction to Electrodynamics*, 3rd (U. S.) Edition, by David J. Griffiths. (You'll also need access to a table of integrals.) If you'd like to read other treatments of the subject or for integrals, the following will be on reserve in the Science and Engineering Library.

Griffiths, *Introduction to Electrodynamics*. Informal, intuitive style but careful.
Reitz, Milford and Christy, *Foundation of Electromagnetic Theory*. Terse
Pollack and Stump, *Electromagnetism*. Comparable in level to Griffiths
Jackson, *Classical Electrodynamics*. Standard graduate text.
Schaum's Outlines, *Mathematical Handbook of Formulas and Tables*

HOMEWORK: Homework will be assigned most weeks and graded. It is due at the START of lecture on the dates indicated. You can turn it in at the start of the next lecture, but will then receive only a small amount of credit for it. Problems marked with a * are recommended but need not be turned in. You may discuss problems with your peers but the solutions you turn in must be your own work and written up separately. Cheating on homework will be prosecuted without exception, vigorously, and to the utmost extent possible, so make sure it is only your work and understanding that you put on paper to turn in. [Please note also that the homework grading scheme is designed specifically to make cheating "unprofitable."]

HOMEWORK, MIDTERM AND FINAL DETAILS:

1. Exams are closed book. Bring a blue book. Formulae will be provided as necessary. You will be assigned a 3-digit code number when you turn in your first homework. Please enter your code number on the exam blue books in the upper right-hand corner.
2. Only in very exceptional cases will there be accommodation for a missed midterm. In such cases, arrangements must be made in advance.
3. The solutions to the exams and recorded grades will be posted on the course web page.

ACADEMIC DISHONESTY: The UCSD rules on academic dishonesty will be strictly enforced.

Outline and Schedule

Week	Chapter[1]	Homework Assignments[1] Due date
0 Sept. 25	1 Vector calculus review	
1 Sept. 28	1 Vector calculus, cont'd Begin Coulomb's law	1.7, 1.12, 1.25, 1.33, 1.42*, 1.44*, 1.47*, 1.49, 1.62* ***Due Monday, Oct. 5***
2 Oct. 5	2 Coulomb's law electric fields, Gauss' law	2.3*, 2.6, 2.7*, 2.8, 2.9, 2.14, 2.16. ***Due Monday, Oct. 12***
3 Oct. 12	2 Properties of E scalar potential	2.20, 2.21, 2.24, 2.25 [only for the disk (c)] 2.26, 2.27* ***Due Friday, Oct. 16***
4 Oct. 19	2 Work and energy ***[Midterm Wed., Oct. 21]***	2.31 – 2.34, inclusive ***Due Monday, Oct. 26***
5 Oct. 26	2 Conductors, capacitance forces	2.35 − 2.40, inclusive ***Due Monday, Nov. 2***
6 Nov. 2	3 Laplace's eqtn., images	3.6, 3.8, 3.9, 3.10 ***Due Monday, Nov. 9***
7 Nov. 9 (Hol. Nov. 11)	3 Separation of variables	3.12, 3.15, 3.18, 3.20, 3.22 ***Due Wednesday, Nov. 18***
8 Nov. 16	3 Spherical probs. & multipoles ***[Midterm Monday, Nov. 16]***	3.27, 3.28, 3.29, 3.31, 3.40 ***Due Wednesday, Nov. 25***
9 Nov. 23 (Hol. Nov. 26-27)	4 Electric fields in matter, D	4.10, 4.15, 4.18, 4.19*, 4.24, 4.26 ***Due Wednesday, Dec. 2***
10 Nov. 30	4 More on D and dielectrics, misc. topics and review	

1. *Introduction to Electrodynamics*, 3rd (U. S.) Edition, by David J. Griffiths.

* You are encouraged to do these (*) problems and check your answers with the posted solutions, but they will not be graded.