PHYC 511, SPRING 2011

GENERAL INFORMATION

Instructor: Prof. Huaiyu “Mike” Duan, duan@unm.edu, P&A 1144, 505-277-1508
TA: ??, ??, P&A ??, ???-???-????
Class schedule: 11:00 AM -- 12:15 PM on Tuesday and Thursday, P&A 184
Problem session (PHYC551.056, CRN 42474): 9:00 -- 9:50 AM on Friday, P&A 184
Instructor’s office hour: 2:00 -- 3:00 PM on Thursday, P&A 1144. You are also welcome to meet me in my
office when the door is open and when I am not talking with other people.
TA’s office hour: ??-?? -- ??-?? PM on ??, P&A ?.
This course is web enhanced. So check WebCT (http://vista.unm.edu/webct) periodically for resources
such as lecture notes and problem solutions.

MAKE SURE THAT WEBCT FORWARD EMAILS TO YOUR REGULAR EMAIL ACCOUNT.
It is expected that you have taken undergraduate E&M (PHYC405/406) and Methods of Theoretical
Physics (PHYC466) or equivalents before registering for this course.

TEXTBOOK AND SUPPLEMENTARY BOOKS

We will use Classical Electrodynamics by J. D. Jackson, published by Wiley, 3rd edition as the main textbook.
Supplementary texts
★ Introduction to Electrodynamics by D. J. Griffiths (This book is used as the textbook for undergraduate
E&M and can still be very useful.)
★ Classical Field Theory by F. E. Low
★ Electrodynamics of Continuous Media by L. D. Landau and E. M. Lifshitz
★ The Classical Theory of Fields by L. D. Landau and E. M. Lifshitz

HOMEWORK, EXAMS AND GRADES

There will be 12 home assignments and each of them will be graded. The grades of the 10 highest scores
will count toward 20% of the final grade. There will be NO MAKEUP ASSIGNMENT. Each assignment is
due at the beginning of the first class of the following week. You can also submit it through WebCT or by
email if you will miss the class. NO LATE ASSIGNMENT will be accepted because the solution will be
posted shortly after.
There will be two midterm exams. Each exam is worth 20% of the final grade.
The comprehensive final exam is worth 40%.
Passing this course requires good problem-solving skills. It is, therefore, essential that you work out each
problem in the assignments and the problem sessions.
You will receive Credit for the problem session as long as you register and show up for more than 60% of
the time.

TOPICS

In the first third of the course we will review some relevant mathematics, electrostatics, magnetostatics
and Maxwell equations (Jackson, Chap. 1--6). It is expected that you have learned all these subjects from
undergraduate E&M (PHYC405/406) and Methods of Theoretical Physics (PHYC466) or equivalents
before registering for this course.
The second third of the course will cover the propagation, radiation, scattering, absorption and diffraction
of electromagnetic waves (Jackson, Chap. 7--10).
The last third of the course will cover special relativity and the interaction between relativistic charged
particles and the electromagnetic field (Jackson, Chap. 11--16).
Obviously we cannot cover every topic in the Jackson book, which is intended to be for a two-semester
course. I will select the subjects that are of general interest.