

PHYSICS 321 - ELECTRICITY & MAGNETISM II - FS09

Instructor: Jerry Peacher
109 Physics
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Office Hours: MTWTh 3:00 - 4:00 P.M.
Generally available at other times by appointment

Class meets at 10:00 a.m., MWF, in room 127 of Physics.

Text: INTRODUCTION TO ELECTRODYNAMICS, THIRD EDITION,
by David J. Griffiths, published by Prentice Hall

Course outline: Ch 7 Electrostatics
Ch 8 Conservation Laws
Ch 9 Electromagnetic Waves
Ch 10 Potentials and Fields
Ch 11 Radiation
Ch 12 Electrodynamics and Relativity

Course points: Test 1	100 points	Friday, Sept. 18, 2009
Test 2	100 points	Friday, Oct. 16, 2009
Test 3	100 points	Friday, Nov. 13, 2009
Final	100 points	Wednesday, Dec. 16, 2009 (1:30 – 3:30 p.m.)
<u>Homework</u>	<u>200 points</u>	
Total	600 points	

Grades: A(540 - 600), B(480 - 540), C(420 - 480), D(360 - 420), F(<360)

Homework is an important part of this course. It will allow you to test yourself to see how well you have absorbed the material. Keeping up with the homework should help you to keep up with the course and do better on the exams. Homework is due by noon the next day after the date indicated in the syllabus. Late homework will be penalized at the rate of 10% per day. No homework will be accepted after it is returned to the class.

This course is offered by the MS&T Physics Department,
Chaired by Dr. Dan Waddill (waddill@mst.edu), 102 Physics, Phone: 341 - 4781
under the auspices of the College of Arts and Sciences,

This material is on the web. Go to the MS&T web page, then click on
A-Z index/P/Physics/Current Courses/Undergraduate/Phys 321.

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DATE	Ch	TOPICS COVERED	PROBLEM ASSIGNMENTS	
M - Aug 24	7	Magnetic fields in Matter		
W - Aug 26	7	Motional emf		
F - Aug 28	7	Faraday's Law	Ch 7 - 1,2,3,4,5	H01
M - Aug 31	7	Inductance		
W - Sept 02	7	Magnetic field energy		
F - Sept 04	7	Ampere's Law (Displacement current)	Ch 7 - 7,8, 10,11,12,13	H02
M - Sept 07	7	<i>Labor Day</i>	<i>class break</i>	
W - Sept 09	7	Maxwell's eqns. in matter		
F - Sept 11	7	Boundary conditions	Ch 7 -15,17,18,19,20,22	H03
M - Sept 14	7			
W - Sept 16	8	Charge and energy	Ch 7-24,25,26a,c	H04
F - Sept 18	8	Test 1		
M - Sept 21	8	Poynting's theorem		
W - Sept 23	8	Maxwell stress tensor		
F - Sept 25	8	Maxwell stress tensor	Ch 7-27,28,29, 31,37,58	H05
M - Sept 28	9	Wave eqn. and plane waves		
W - Sept 30	9	Reflection and Transmission coefs.		
F - Oct 02	9	Fresnel's eqns.	Ch 8 - 1,2,4,5,6,9	H06
M - Oct 05	9	Fresnel's eqns.		
W - Oct 07	9	Electromagnetic waves in a conductor		
F - Oct 09	9	Reflection, Transmission for a conductor	Ch 9 - 2,3,8,9,10,11,12	H07
M - Oct 12	9	Potential formulation		
W - Oct 14	10	Retarded Potentials	Ch 9 - 13,17,18	H08
F - Oct 16		Test 2		

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DATE	Ch	TOPICS COVERED	PROBLEM ASSIGNMENTS	
M - Oct 19	11	Liénard-Wiechert potentials		
W - Oct 21	11	Electric dipole radiation		
F - Oct 23	11		Ch 9 - 19,20,21 Ch 10 - 1,2,3,4,5,6	H09
M - Oct 26	11	Magnetic dipole radiation		
W - Oct 28	11	Radiation from a moving charge		
F - Oct 30			Ch 10 - 10,13,14,18,19,20,25	H10
M - Nov 02				
W - Nov 04	12	Einstein's postulates		
F - Nov 06	12	Geometry of Relativity	Ch 11- 3,6,9,13,14,21,25	H11
M - Nov 09	12	Lorentz transformation		
W - Nov 11			Ch 12 - 3,4,5,7,8	
F - Nov 13		Test 3		
M - Nov 16	12	Structure of Spacetime		
W - Nov 18	12	Energy and Momentum		
F - Nov 20	12	Proper time and velocity	Ch 12 - 9,10, 13,15,18	H12
M - Nov 23		<i>Thanksgiving</i>	<i>class break</i>	
W - Nov 25		<i>Thanksgiving</i>	<i>class break</i>	
F - Nov 27		<i>Thanksgiving</i>	<i>class break</i>	
M - Nov 30	12	Relativistic Energy and momentum		
W - Dec 02	12	Relativistic Kinematics		
F - Dec 04	12	Relativistic Dynamics	Ch 12 -20,25, 29,31	H13
M - Dec 07	12	Relativistic Electrodynamics		
W - Dec 09			Ch 12 - 32,33,35,36	H14
F - Dec 11				

Final exam: Wednesday, Dec. 16, 2009 from 1:30 to 3:30 p.m.