PHYS 305, Advanced Electricity and Magnetism II
Spring 2012 Syllabus
Texas A&M University

Lectures: MWF 9:10-10:00, room 213 MPHY (Mitchell Physics Building)
Instructor: J. H. Ross, Email: ross@physics.tamu.edu
course web-page: faculty.physics.tamu.edu/ross/305page.html
office: 448 MPHY (845-3842); lab: B03 ENPH (845-7823)
office hours: MWF 10:15-11:30, other times call or email first if possible.


Prerequisites: This course is the continuation of Physics 304. You should have completed Physics 304 or its equivalent.

Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework (approx. 10 sets)</td>
<td>15%</td>
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<tr>
<td>Exam 1</td>
<td>25%</td>
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<tr>
<td>Exam 2</td>
<td>25%</td>
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<tr>
<td>Final Exam</td>
<td>35%</td>
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Following is the tentative schedule with corresponding chapters in Griffiths text. Exams have been scheduled in the evening as established in the TAMU schedule.

week 1  Jan. 18, 20  ch. 7.1-7.2: Ohm’s law, emf’s, power.
week 2  Jan. 23–27  ch. 7.2-7.3: Faraday’s law, Inductance.
week 3  Jan. 30–Feb. 3 ch. 7 continued: Maxwell’s equations.
week 4  Feb. 6–10  ch. 8: Poynting vector, electromagnetic energy, momentum flow.
week 6  Feb. 20–24  ch. 9.3-9.4: waves in matter, boundary conditions.

Exam 1: Tues. Feb. 21 8:00 PM, chapters 7, 8, 9.1-9.2 (location: MPHY 203)

week 7  Feb. 27–Mar. 2 ch. 9.4-9.5: absorption/dispersion of waves, waveguides.
week 8  Mar. 5–9  ch. 10.1-10.2: fields and gauges, retarded potentials.
week 9  Mar. 19–23  ch. 10.3: point charge applications.
week 10  Mar. 26–30  ch. 11.1: radiation sources, dipole radiation.
week 11  Apr. 2, 4 ch. 11.2: radiation of point charges.
week 12  Apr. 9–13 ch. 12.1: relativity postulates and transformations.

Exam 2: Thurs. April 12 8:00 PM, chapters 9.3–9.5, 10, 11 (location: MPHY 203)

week 13  Apr. 16–20 ch. 12.2: relativistic mechanics.
week 14  Apr. 23–27 ch. 12.3: electrodynamics and relativity.
week 15  Apr. 30, May 1 continuation, review.

Final Exam Friday May 4, 10:00 AM

Important Further Information: The American with Disability Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, Room Room B118 of Cain Hall, 979-845-1637. For additional information visit http://disability.tamu.edu.

You should also know the Aggie Honor Code: “An Aggie does not lie, cheat, or steal or tolerate those who do.” For more information, refer to the Honor Council Rules and Procedures on the web at http://www.tamu.edu/aggiehonor.

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