

# PHYS 3414- Electricity and Magnetism - Spring 2014 Syllabus

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**Class Meeting:** MoTuWeFr 2:00PM - 2:50PM in PHYS 133

## Office Hours

- Dr Stewart - SCEN 110 – MW 9:30-10:30am, F 10:30-11:30am
- Grader – Jing Wang – PHYS 201 – Office Hours: TuTh 11:00am-12:30pm
- Student Helper – Jonathan Mishler – Physics Library – M 10:45-11:35am, Th 5:00-6:00pm.

**Course Website:** <http://www.uark.edu/depts/physinfo/em14> - All homework assignments, solutions, and lecture notes will be posted at the course website. Grades will also be posted in BlackBoard available at <http://learn.uark.edu>. Videos of lecture from the Spring 2013 semester are available at this site. Homework and test solutions will be posted as the assignments are returned. Only a sample subset of the problems in each homework set will be graded, so work all the problems.

## Course Materials:

- **Required Textbook** – David Griffiths, *Introduction to Electrodynamics, Fourth Edition*
- Other Materials – You will be allowed to bring a math handbook to the exams (not a math textbook). I suggest *Schaum's Outline of Mathematical Handbook of Formulas and Tables, 4th Edition*.

## Schedule of Topics

Week 1 beginning 1/13: Chapter 1 - Cal III

Week 2 beginning 1/20: Chapter 2 - Electrostatics – Part I

Week 3 beginning 1/27: Chapter 2 - Electrostatics – Part II

Week 4 beginning 2/3: Chapter 2 - Electrostatics – Part III (This is the final topic covered by Test 1).

Week 5 beginning 2/10: Chapter 3 – Boundary Value Problems

Week 6 beginning 2/17: Chapter 3 – Method of Images + Test 1

Week 7 beginning 2/24: Chapter 4 – Electric Field in Materials

Week 8 beginning 3/2: Chapter 4 – Electric Field in Materials (This is the final topic covered by Test 2).

Week 9 beginning 3/9: Chapter 5 – Magnetic Field

Week 10 beginning 3/16: Chapter 5 – Vector Potential

Week 11 beginning 3/31: Chapter 6 – Magnetic Field in Materials (This is the final topic covered by Test 3).

Week 12 beginning 4/7: Chapter 7 – Faraday's Law

Week 13 beginning 4/14: Chapter 7 – Ampere's Law for Electrodynamics

Week 14 beginning 4/21: Chapter 8 – Conservation Laws

Week 15 beginning 4/28: Intro to EM Waves and Review

Final Exam: Monday May 5<sup>th</sup> at 1:00pm in PHYS 133

**Test Format** – All exams will be closed book. You are allowed to drop one half of one exam. You will be permitted one 8 ½ by 11 inch sheet of paper (both sides) for formulas or whatever you want. You may also bring a math handbook and a copy of the material inside the front and back covers of Griffiths. You will be allowed access to a symbolic math program (Mathematica is suggested) either through your own laptop, your calculator, or the computer in the test room. The math program may only be used to do one-dimensional integrals as part of the work you turn in. You may use it to check any other mathematics you wish.

**Illness Policy** - Please do not come to lecture or any other class if you have a fever or flu-like symptoms. Contact me immediately by email. Stay at home until you are better. See a doctor when you can. I will make appropriate accommodations with a doctor's note.

**Inclement Weather Policy:** Unless classes have been officially canceled by the UA, students are expected to attend all class meetings and examinations. If the student lives someplace from which they feel it would be dangerous to travel to the University, they should call and inform their instructor or leave a message for their instructor with the physics department. Students missing a test for this reason will be required to take an alternate test that I will attempt to make of the same difficulty as the missed exam. You are responsible for making the decision to travel in bad weather. I never want a student to put themselves at risk to attend class.

**Grading Policy** The class is graded on a straight percentage scale >85% A, >70% B, >60% C, >50% D, otherwise F. Grades will be

posted online with permission.

**Assignments** There will be 11 homework assignments (drop 1) each worth 10 points and three in-semester exams and one final exam (drop ½) each worth 100 points. Your letter grade in the class may not be more than one letter grade higher than your average test grade with drops or your average homework grade with drops.

Assignment	Number	Points	Drop	Points with Drop
Homework	11	10	1	100
Test	4 (3 in-semester and final exam)	100	1/2	350
Total				450

**Academic Dishonesty** Instances of Academic Dishonesty will be handled in accordance with the guidelines outlined in the University of Arkansas Undergraduate Studies Catalogue. I take cheating very seriously. If you are caught cheating, I will ask that you immediately drop the class.

**Final Grades** At the end of the course, final grade decisions are mine. I reserve the right to give students near a grade border or with special circumstances a higher grade than they have mathematically earned. In extraordinary circumstances, I reserve the right to give a student a lower grade than they mathematically earned.