PHYS 633: Electromagnetic Fields II  
Spring 2016

Class Location and Hours: 144 Cardwell Hall. 12:30 pm-1:20 pm. MWF, Jan 20 – May 6, 2016. Final: May 13, 4:10pm

Office Hours: Walk-in or by appointment (please e-mail).

Instructor information:
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Pre-requisites: PHYS532 Electromagnetic Fields I

Course Texts:
The primary textbook for this course is *Introduction to Electrodynamics (4th ed.) by David Griffiths* (the 3rd edition of this book is very similar to the 4th edition and may be used instead). We will cover chapters 8-12. Several other books cover similar ground, and the following is a partial list:

*Electromagnetism* by G. L. Pollack and D. R. Stump  
*Introduction to Wave Phenomena* by A. Hirose and K. E. Lonngren  
*Feynman Lectures on Physics*, Vols. I and II.  
*Principles of Electrodynamics* by Melvin Schwartz. This is an excellent and cheap book (~$14 on Amazon).  

Advanced (graduate level), but classic, texts:  
*Classical Theory of Fields* by Landau and Lifshitz  
*Classical Electrodynamics* by J. D. Jackson

In addition, you may need to keep a vector calculus book such as *div, grad, curl, and all that* (3rd ed.) by H. M. Schey at hand.

I strongly encourage you to read your textbook before the class, so you have some familiarity with the material that will be covered. Reading other textbooks, even if it is a shallow reading without working through the math, is also very beneficial.

iClickers: iClickers will be used in this course. You will need to purchase one if you do not already have one. Any version will do.

K-State Online: The Canvas version of KSOL will be used. Homework assignments will be posted on KSOL each week.

Grading scheme:

*In-class work: 10%*

- Participating in class beyond just taking notes is an important way to learn physics. We will therefore have in-class discussions (which may involve Clicker questions), problems that are solved in small groups, as well as individual quizzes. To get credit for this work, you must be in class and participate meaningfully; the amount of credit will depend on both the quality and frequency of your participation.

*Homework: 25%*

- Homework will be due in class on Mondays every week. Two lowest scores will be dropped.

*Mid-term Exams: 40%*

- There will be two written mid-term exams. The dates will be announced in class and posted on Canvas. The first exam will tentatively be on Feb 29, the second in early to mid-April.

*Final exam: 25%*

- The final exam will be held in CW144 on May 13 (Friday) from 4:10 pm to 6:00 pm.

*Extra-credit Project: 5%*

- Interested students can do a small-group (3-4 students) computational project for extra credit. A short presentation to the class, a written report and a working program would be required to complete the project.
Homework Guidelines:
I encourage you to work with your classmates on homework assignments, but **you must write the solutions on your own**. If you work with your classmates, please include an acknowledgement of their contribution. If you use other sources, please cite them appropriately. This is good scientific practice. Plagiarism is not acceptable, and will be penalized.

Being able to communicate scientific information and arguments effectively is part of the skill set you must acquire as a physics student. You must write out your assignments in a clear and coherent manner. Sloppy writing will carry a penalty.

If you are unable to correctly solve a problem, I will give credit if you submit a clear exposition of what you tried to do, and why you think it failed.

**Late work will not be accepted.** If you are unable to come to class on Monday, let me know ahead of time so we can figure out an alternative way to turn in your homework solutions.

Attendance:
We will frequently discuss material and problems in class that are not covered in the textbook, and it is therefore extremely important that you attend every class. If you know that you will have to miss a class (or already missed one), please send me an email so we can arrange a way for you to cover the material you missed.

Learning Outcomes:
The following learning outcomes have been identified for this course:

- Have a solid foundation in the basics of theoretical physics.
- Have hands-on experience with common mathematical, computational and experimental tools.
- Be capable of communicating information, scientific or otherwise, in both written and verbal form.
- Understanding of one advanced topic in theoretical or experimental physics.
- Adequate preparation to succeed in graduate studies in physics or other technical disciplines, or in professional schools.

Mandatory K-State Course Syllabi Statements:
1. **Statement Regarding Academic Honesty**
   Kansas State University has an Honor and Integrity System based on personal integrity, which is presumed to be sufficient assurance that, in academic matters, one’s work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor and Integrity System. The policies and procedures of the Honor and Integrity System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning. The Honor and Integrity System website can be reached via the following URL: [www.k-state.edu/honor](http://www.k-state.edu/honor). A component vital to the Honor and Integrity System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: "On my honor, as a student, I have neither given nor received unauthorized aid on this academic work." A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

2. **Statement Regarding Students with Disabilities**
   Students with disabilities who need classroom accommodations, access to technology, or information about emergency building/campus evacuation processes should contact the Student Access Center and/or their instructor. Services are available to students with a wide range of disabilities including, but not limited to, physical disabilities, medical conditions, learning disabilities, attention deficit disorder, depression, and anxiety. If you are a student enrolled in campus/online courses through the Manhattan or Olathe campuses, contact the Student Access Center at [accesscenter@k-state.edu](mailto:accesscenter@k-state.edu), 785-532-6441; for Salina campus, contact the Academic and Career Advising Center at [acac@k-state.edu](mailto:acac@k-state.edu), 785-826-2649.

3. **Statement Defining Expectations for Classroom Conduct**
   All student activities in the University, including this course, are governed by the Student Judicial Conduct Code as outlined in the Student Governing Association By Laws, Article V, Section 3, number 2. Students who engage in behavior that disrupts the learning environment may be asked to leave the class.

Other Statements:
1. **Academic Freedom Statement**
   Kansas State University is a community of students, faculty, and staff who work together to discover new knowledge, create new ideas, and share the results of their scholarly inquiry with the wider public. Although new ideas or research results may be controversial or challenge established views, the health and growth of any society requires frank intellectual exchange. Academic freedom protects this type of free exchange and is thus essential to any university’s mission. Moreover, academic freedom supports collaborative work in the pursuit of truth and the dissemination of knowledge in an environment of inquiry, respectful debate, and professionalism. Academic freedom is not limited to the classroom or to scientific and scholarly research, but extends to the life of the university as well as to larger social and political questions. It is the right and responsibility of the university community to engage with such issues.

2. **Statement for copyright notification:**
   Copyright 2016 (Daniel Rolles) as to this syllabus and all lectures. During this course, students are prohibited from selling notes to or being paid for taking notes by any person or commercial firm without the express written permission of the professor teaching this course.