

# PHYS-224, Electricity & Magnetism

Course Information – Fall 2009 A Section

**Professor:** Dr. Daniel Russell

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**Office Hours:** MWF 12:30pm – 1:30pm, MW 3:45-4:45

⇒ **PHYS-224 homepage:** <http://www.kettering.edu/~drussell/phys224.html> ⇐

**Text:** Knight, *Physics for Scientists and Engineers*, 2<sup>nd</sup> Edition, Volume 4  
with Student Workbook (must be *blank* – we will use this in class)  
with *Mastering Physics Student Access Kit*

## Classroom Policies

### Attendance

You are expected to attend (on time) and participate in every class session. Your attendance will be monitored. Students who miss more than 4 lectures without an acceptable excuse may be withdrawn from the course.

### Cell Phones

Cell phones must be turned off during class. Dr. Russell tends to get very annoyed if he hears phones ringing during class time. Cell phones are not allowed as calculators during exams.

## Grading

Daily Reading Quizzes	5%	
Mastering Physics Homework	10%	
Lecture Worksheet Quizzes	5%	
In-class Tests	60%	(highest score 30%, middle score 20%, lowest score 10%)
Final Exam	20%	

## Daily Reading Quizzes (5% of grade)

The course schedule contains a reading assignment for each lecture period. You will be expected to read these sections from the textbook **before** coming to class. In addition, before coming to class for each lecture you will take a brief internet quiz which will assess your understanding of the reading material and prepare you for each lecture. The purpose of these daily quizzes is: (1) to help you keep up with the course material, (2) to get you thinking about the lecture material before you come to class, (3) to provide you and your professor with instant feedback on areas that may give you difficulty, and (4) to help your professor make more effective use of time spent in the classroom. Daily Reading Quizzes will be taken over the Internet using a web browser. You may take the quizzes from anywhere, at any time of day or night, as long as you submit them **by 1:30pm** each day. Dr. Russell looks at the individual/class responses before coming to class and adjusts the lecture material to reflect student responses.

The starting point for each daily quiz is the "**Daily Quiz**" link from the PHYS-224 homepage (see URL above). To logon to each quiz you will need a UserID and password. **Your UserID is your LastnameF (where F is the first initial of your first name).** For example, Dr. Russell's UserID is RussellID. **Your password is the last five numbers in your student ID.** Each daily quiz will consist of 10 questions covering the assigned reading, and may include a combination of fill-in-the-blank, multiple choice, simple number calculations, and short essay. Collaboration is allowed, but for many quiz questions individual student's quizzes will have unique numbers. You may logon to a quiz as many times as you like, but you may submit each quiz for a grade only once — you will not be able to submit a quiz a second time to improve your score. You will receive a raw percent grade immediately upon completing the quiz, but the recorded quiz grade will be curved (your score times 0.5 + 50). For example, if you correctly answer 7 out of 10 questions, your score will be  $70\% \times 0.5 + 50 = 85$ . If you attempt a quiz and get every question wrong you will still get a 50%. However, if you do not take a quiz you will receive a zero for that quiz. Each daily quiz will also provide you with the opportunity to give feedback to your professor about the reading assignment, what you would like clarified in class, or anything else about the course.

## Mastering Physics Homework (10% of grade)

Students are required to complete a homework assignment consisting of approximately 15 questions for each chapter we cover from the textbook. Homework will be assigned using the Mastering Physics on-line homework system (<http://www.masteringphysics.com>). The course ID is **KUPHYS224RUSSELL**, and you will need a **student access code** to enroll. If you purchased and used a student access code for PHYS-114 you should still be able to use the same access code. Questions will include both conceptual and numerical problems. Due dates are posted on the course schedule (available from the course website), and there will be a significant reduction in points for submitting homework assignments after the due date.

⇒ I cannot emphasize enough how important it is for you begin working on the homework as soon as it is posted so that you have sufficient time to seek out your professor when you need help.

## Lecture Quizzes (5% of grade)

On a regular basis –not every single lecture, but at least twice a week – we will have a quiz during the last 10-15 minutes of class. Quizzes may cover material from that day's lecture (and the previous night's reading assignment) or topics from the last couple of lectures. Quizzes will be open notes, and students will work with a partner. The lowest quiz score will be dropped, but there will be no make-ups for missed quizzes.

## Tests (60% of grade)

There will be three (3) **in-class tests** (see dates on course schedule). Your highest test score will count for 30%, your middle score for 20% and your lowest score for 10%. Tests will usually consist of a combination of multiple choice questions (including conceptual, graphical and numerical problems) some short essay type questions, and some more detailed worked out problems. In order to receive full credit for any and all questions you must correctly show all work in detail, or correctly explain the reasons for your answer. Skipping steps, or not showing work will result in loss of points even if your answer is correct. Your Professor reserves the right to award zero points for simply stating the correct answer without showing work. Partial credit will be given for correct work. Equation sheets will be provided for each test.

⇒ Any disputes concerning graded material must be brought to the professor's attention in writing within three (3) class periods after the test was handed back.

**Calculator Policy:** calculators will be required for every exam, but there are no restrictions on the specific make or model. Students will be required to show all work for all problems, so feel free to use a calculator that you are comfortable with. Cell-phones, however, will **not** be allowed as calculators.

**Make-Ups:** for tests will be administered only in extreme cases. The decision to allow a makeup test rests exclusively with the professor, and Dr. Russell reserves the right to refuse a request for a makeup exam if the reason for the request is not considered to be a legitimate emergency situation. **Requests for makeup tests must be made within 24 hours before or after the test**, and documentation must be provided to explain the reason for requesting a makeup.

**Cheating:** as defined in the Code of Academic Integrity (see the Kettering University Student Handbook) cheating will not be tolerated. The minimum penalty for the first offense is a zero (not a Kettering 65). All suspected cases of cheating will be referred to the Dean of Students for disciplinary action.

## Final Exam (20% of grade)

The final exam for this course will be comprehensive over the entire course and will be common to all sections of PHYS-224. The format for the final exam, as well as the date, time, and location will be announced later in the term.

## Withdrawal Policy regarding Laboratory

PHYS-224 (lecture) and PHYS-225 (lab) are co-requisite courses, which means that they must be taken simultaneously. Any student who withdraws from PHYS-224 (lecture) before Friday of 6th week must also withdraw from PHYS-225 (lab). Any student who withdraws from PHYS-224 during or after 7th week may elect to remain in PHYS-225 (lab) for the remainder of the term. Any student who fails of withdraws from PHYS-225 (lab) must retake the entire laboratory course completing all of the experiments. NO credit will be given for laboratory exercises completed during previous terms.

## Personal Study Habits

Physics 224 has a reputation of being a tough course. Your professor's job is to try to help you learn the material. I want you to succeed. I take my job very seriously and will try to explain things as clearly and thoroughly as I can. I want to warn you, however, that at times the material may seem deceptively easy. Just because you can follow what your professor is doing at the board does not mean that you understand the material well enough to do problems on your own on a test. You must practice working problems in order to fully understand the material yourself. I have high expectations from Kettering students, and I will expect you to do whatever work is necessary to meet the standards I have set for the course. I know that time is a precious commodity at Kettering University, but **to really succeed in this course you will probably need to spend between 6 and 9 hours per week studying (This does NOT include time studying for tests!)**. If you want to earn a good grade in this class your daily study time should include:

- 1) reviewing your notes, and reworking any examples your professor does in class
- 2) reading the text (taking the daily quizzes), taking notes, working the examples in the book
- 3) completing the Mastering Physics Homework (don't wait until the day it is due to begin!!)
- 4) using your professor's office hours when you need help.

Start working homework problems each night after class. If something is unclear in lecture, please ask immediately in class or **come and see me in my office**. I will be happy to help you understand.

## Course Objective

The objective of this course is for students to gain a basic understanding of the physics behind electric and magnetic fields, the forces they exert on charged particles, and some applications of these fields and forces to practical problems.

It is your responsibility as the **student** to learn the course material by (1) attending class regularly and taking good notes, (2) reading the assigned text material, (3) practicing applying the material to homework from the textbook, and (4) seeking out the professor for help.

It is my responsibility as the **professor** to help you learn the course material by (1) clearly explaining concepts which are difficult to grasp, (2) demonstrating how to apply the course material to the solution of problems, (3) writing tests which challenge you to think but are not too difficult, and (4) helping students one-on-one when they seek help.