**Syllabus PHY2061**

### PHY 2061 — Honors Physics 2 — Fall 2018

**Course:** PHY 2061, Class Number 14452, Honors Physics 2, **Class Hours:** T-Th, Periods 4 and 5 (10:40 - 11:30 am and 11:45 - 12:35 am), Room 1002
**Instructor:** G. R. Stewart, Office NPB 2132, phone 392-9263, e-mail stewart@phys.ufl.edu, **Office Hours:** Tuesday Period 6 (12:50-1:40 pm) or anytime by arrangement

**Course Description:** This is the second semester of the Enriched Physics With Calculus (Honors Physics) sequence PHY 2060–2061 for students with prior preparation in physics who wish to acquire a deeper understanding of the subject. The enriched sequence covers similar material to the Physics With Calculus sequence PHY 2048–2049, but treats basic topics at a faster pace, incorporates more advanced material, and places greater emphasis on instilling conceptual understanding and on developing the ability to solve more challenging problems. PHY 2061 covers concepts in electromagnetism.

**Prerequisites:** This course requires that you have studied Newtonian mechanics in a previous calculus-based physics course such as [PHY 2060](http://www.phys.ufl.edu/~kevin/teaching/2060/) and at least have co-registered in a vector calculus course (Calc 3).

**Topics:** Maxwell's electromagnetic theory breaks into four broad subdivisions that concentrate on static and dynamic aspects of the theory.

* Electricity: Coulomb's law, electric field, Gauss's law, electric potential, electric materials (Chapters 25–31)
* Magnetism: Lorentz force, magnetic field, Ampère's law (Chapters 32–33)
* Induction: Faraday's law, magnetic materials, AC circuits (Chapters 34–37)
* Maxwell's equations, electromagnetic waves, interference and diffraction, optics, ... (Chapters 38–44)

**Grading:** Grades will be based 30% on homework sets, 30% on the midterm exam and 40% on the cumulative final exam.
**Homework:**Homework will be due each Tuesday in class. Solutions to the homework will be posted on the class’ Canvas/e-Learning web site after class on Tuesday. **The final exam** is *7:30-9:30 am* on Thursday, December 13 (Exam group 13A) **in our regular classroom.** The midterm exam will be in class, closed book, with 1 formula sheet 8.5x11” allowed.  The anticipated letter grade scale is A: 85%; A-: 81%; B+: 77%; B: 70%; B-: 65%; C+: 60%; C: 50%; C-: 45%.  For information on current UF grading policies for assigning grade points, see [here](http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html).

The following paragraphs of advice on how to do well in Physics are shamelessly plagiarized from an earlier class.   You are of course free to make your own choices, but - if you should feel inclined to accept advice (which although 'free' is not of zero worth) - you will find it helpful:
  I do not take daily attendance, but it is to your advantage to *attend class*. You may spend most of your time distracted by things other than physics, but in between you will have the opportunity to learn what subjects I think are important, and you can then concentrate on these subjects during your reading. If by some unfortunate set of circumstances you do miss class, do not ask me if I said anything important. Instead, ask a classmate; she or he is likely to give an honest answer, and you won't offend me. There will be a substantial number of examples discussed in class that are not in the textbook, and examples in class *will*, in some sort of modified form, appear on tests. If you miss class you will not do as well in this course.
  *Do the assigned homework.* This is the drudge part of physics, but it is absolutely necessary. We will learn grand ideas and see their wondrous applications in class. But, your understanding is only superficial unless you can apply these same grand ideas to completely new circumstances. In course work, this is usually done with homework problems. Do not be surprised if the homework is frustrating at times; solving one challenging problem makes the next much easier. And homework problems often appear on tests. Doing all of the homework is the easiest way to improve your grade. Not doing homework is the easiest way to lower your grade.

**Textbook:** The course text is

* [David Halliday](http://www.phyast.pitt.edu/people/fprofile.php?id=156), [Robert Resnick](http://www.rpi.edu/about/hof/resnick.html), and [Kenneth S. Krane](http://www.physics.purdue.edu/alumni/distalum/krane.shtml), [*Physics*](http://he-cda.wiley.com/WileyCDA/HigherEdTitle/productCd-0471401943%2CcourseCd-PH1200.html), Volume 2 (5th edition, Wiley, 2001).

This text is required, meaning that you will be assumed to have access to this text to complete reading and homework assignments.

**Other books:**

* [*Electricity and Magnetism*](http://catalogs.mhhe.com/mhhe/viewProductDetails.do?isbn=0070049084), Berkeley Physics , Vol. II (McGraw-Hill).
* Richard P. Feynman, Ralph B. Leighton, and Matthew Sands, [*The Feynman Lectures on Physics*](http://www.feynmanlectures.info/), in three volumes (Addison-Wesley/Prentice Hall).
* [David J. Griffiths](http://academic.reed.edu/physics/faculty/griffiths.html), [*Introduction to Electrodynamics*](http://vig.prenhall.com:8081/catalog/professional/product/1%2C4096%2C013805326X%2C00.html), 3rd edition (Addison-Wesley).
This book is more advanced, often used in the upper level physics E&M sequence, but still can be useful.

**Outside Help Services:** The Teaching Center in Broward Hall (tel. 392-2010) offers a range of free services, including individual tutoring in physics.

**Accommodations:** Students requesting classroom accommodations must first register with the Disabilities Resources Program, located in the Dean of Students Office, P202 Peabody Hall. The Disabilities Resources Program will provide documentation to the student, who must then deliver this documentation to the instructor when requesting accommodations.

**Academic Honesty:** All University of Florida students are required to abide by the University's Academic Honesty Guidelines and by the Honor Code, which reads as follows: *We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."* Cheating, plagiarism, or other violations of the Academic Honesty Guidelines will not be tolerated and will be pursued through the University's adjudication procedures.