

## Syllabus: PHY 2061 - Enriched Physics 2 - Fall 2018 - Tu-Th, Periods 2 & 3

### **Instructor**

James J. Hamlin  
Associate Professor  
Office: NPB 2263  
Phone: 352-392-4947  
email: jhamlin@ufl.edu

### **Class meeting time and location**

Tuesday and Thursday, Periods 2 & 3 (8:30 - 10:25 am) in NPB 1002

### **Office hours**

Monday and Wednesday, Period 8 (3:00 - 3:50 pm) in NPB 2263

### **Course objectives and goals**

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 and at least have co-registered in a vector calculus course (Calc 3).

### **Textbook**

Resnick, Halliday, Krane: Physics, Volume 2 [5th Edition, Wiley].

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

### **Reading assignments**

You are expected to read the material to be covered in each lecture before coming to the class. The lectures will cover a lot of material listed in the schedule, but they are not designed to be a substitute for the text. The lectures will consist mainly of illustrating concepts with experiments and demonstrations, discussing additional material omitted in the text, pointing out subtle points and common mistakes, and asking questions to find out and clarify misconceptions. The homework and exams will be based on materials covered in lectures as well as those listed in the schedule.

### **Grading**

Grading will be based on an absolute point scale from 0 to 100. The letter grade assignment will be based on the students total point score. Points will be assigned for homework (max 20 points), quizzes/additional assignments at the whim of the instructor (max 5 points), and exams (max 75 points). The conversion to letter grades will be done using the following conversion table after rounding the total number of points to zero decimal places.

A	$\geq 85$
A-	$\geq 78$
B+	$\geq 71$
B	$\geq 65$
B-	$\geq 58$
C+	$\geq 51$
C	$\geq 45$
C-	$\geq 42$
D+	$\geq 38$
D	$\geq 35$
D-	$\geq 30$
E	$< 30$

## Homework

Homework will typically be assigned weekly, and will be communicated in class via handouts or via email. Cooperation on homework is permitted and discussion of problems among students is encouraged. The instructor will not solve homework problems until after the due date for the homework assignment. The final homework score is calculated as an average of all homework scores, dropping the two lowest homework scores. Therefore, there will be no extensions or makeup homework assignments. The only exception is long-term illness which will be reviewed on a case by case basis.

Set	Homework subject	Due date
Homework 1	Chap. 25	Aug. 30, 2018
Homework 2	Chap. 26	Sept. 6, 2018
Homework 3	Chap. 27	Sept. 13, 2018
Homework 4	and so on...	Sept. 20, 2018

## Quizzes and in-class assignments

On the Tuesday following every week in which there was material covered for the first four weeks of class (reason explained in class), a 15-min quiz will be administered in class. The material of the quiz will correspond to the material covered in the previous week. The final quiz score is calculated as an average of all quiz scores, dropping the lowest quiz score. It is possible that there will be additional quizzes or in class assignments throughout the semester. I will announce these ahead of time.

## Exams

In addition to the final exam, two other in-class exams will be administered. These will cover significant chunks of the class material. Each exam will carry a maximum score of 80 points. The final exam will also carry a maximum score of 80 points. The total score for exams will be computed based on the formula:

$$0.33 \times (E1 + E2 + F)$$

where  $E1$ ,  $E2$ , and  $F$  are the scores on the two 'midterm' exams and final, respectively.

## Course schedule (tentative)

The schedule below lists the topics planned for each lecture, cross-referenced to the text, as well as the date of each exam. This schedule is likely to evolve. It is your responsibility to be aware of any changes announced in class. Announcements will also be posted via email.

Meeting #	Date	Topics
1	8/23	Coulomb's Law (Ch. 25)
2	8/28	Electric field (Ch. 26)
3	8/30	E field, dipoles (Ch. 26)
4	9/04	Gauss' Law (Ch. 27)
5	9/06	Gauss' Law, conductors (Ch. 27)
6	9/11	Electric potential, energy (Ch. 28)
7	9/13	Electric materials (Ch. 29)
8	9/18	Exam 1 (Ch. 25-28)
9	9/20	Capacitance (Ch. 30)
10	9/25	Currents and circuits (Ch. 31)
11	9/27	Magnetism (Ch. 32)
12	10/02	B field (Ch. 33)
13	10/04	Biot-Savart (Ch. 33)
14	10/09	Ampere's Law (Ch. 33)
15	10/11	Faraday's Law (Ch. 34)
16	10/16	Induction (Ch. 34)
17	10/18	Magnetic dipoles (Ch. 35)
18	10/23	Review
19	10/25	Exam 2 (Ch. 29-34)
20	10/30	Magnetic materials (Ch. 35)
21	11/01	Inductance (Ch. 36)
22	11/06	RLC circuits (Ch. 37)
23	11/08	Maxwell's Equations (Ch. 38)
24	11/13	Poynting vector, waves (Ch. 39)
25	11/15	Refraction, Snell's Law (Ch. 39)
26	11/20	Interference (Ch. 41)
27	11/27	Mirrors and lenses (Ch. 40)
28	11/29	Mirrors and lenses (Ch. 40)
29	12/04	Review/Special topics
30	12/12	Final Exam, 7:30-9:30 am in NPB 1002

### **Class attendance, make-up exams, etc...**

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

### **Accommodations for students with disabilities**

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

### **UF grading policies**

Information on current UF grading policies for assigning grade points can be found here:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

## **Online course evaluation**

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

## **The Honor Pledge**

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. 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” The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.”

## **Counseling and Wellness Center**

Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 352-392-1575; and the University Police Department: 352-392-1111 or 911 for emergencies.