INTRODUCTORY PHYSICS FOR SCIENTISTS AND ENGINEERS

Physics 1212  Tu & Th  Period 3  11:00am-12:15pm  Room 202  Fall Semester 2012

PHYS 1212 is the second semester of a two semester course in introductory physics. It is a four credit hour course requiring a working knowledge of calculus, trigonometry, algebra, and geometry.

Instructor  Prof. Michael Geller
office: Room 251 Physics Building
phone: 706-340-6021
email: mgeller@uga.edu

Web Page  www.physast.uga.edu/courses
Refer to the this web page for general announcements, homework assignment notifications, course schedule modifications, exam information, and syllabus updates.

When do labs start?
The labs begin the second week of classes, August 20-24. Please read through the online lab syllabus and the first experiment before the first lab.

Course Format
This course consists of two lectures and one laboratory per week. The lectures will be used primarily to supplement the material discussed in the book, not present it comprehensively. You will be expected to study assigned material before it is discussed in class. If you do not study the assigned material on your own or do not do the assigned reading before coming to class you will have difficulty in this course. You will be responsible for all the assigned material—it may appear in the homework or on an exam—even if it is not discussed in class.

You must also be registered for one of the laboratory sections which will meet once a week for two hours. The laboratory is required. Graduate teaching assistants will be assigned to be your lab instructors. They will assign you a laboratory grade at the end of the semester. I will include that grade in your overall grade for the course. Questions about the laboratory exercises should be directed to your lab instructor.

Office Hours  After class, or by appointment
Room 251 Physics Building

Course Assistant  Ke Ma. Email: wisemark@sina.com
Office hour: Thursday 2:00-3:00pm, Room 312 Physics Building

Required Course Materials

Physics for Scientists and Engineers, A Strategic Approach with Modern Physics (3rd edition), by R. D. Knight (Addison Wesley, 2012). Available at the bookstore. You may instead use the 2nd edition, but are still required to purchase a current Mastering Physics license (see below). Note that the Mastering Physics license will give you online access to an electronic version of the
3rd edition of the textbook, but you cannot use this or any online resources during our open-book exams. It is fine, however, to bring the 2nd edition to the exams.

*Experiments for an Introductory Physics Course* (2010 or 2011 edition), UGA Dept. of Physics and Astronomy (Hayden-McNeil Publishing). Required for the laboratory section of the course. Available at the bookstore.

*Mastering Physics* online homework system. Access code available from [www.masteringphysics.com](http://www.masteringphysics.com) (or might be included with the text). If you already have a subscription, make sure it will remain valid throughout the semester.

Scientific calculator.

**Homework**

Homework will be assigned in class and graded using the *Mastering Physics* online grading system. Our course ID is PHYS1212FALL12GELLER. We recommend saving a screenshot copy of each submitted homework assignment in the unlikely event the Mastering Physics service loses your record (to the best of our knowledge, this has never occurred).

**Exams**

There will be three in-class midterm exams and a cumulative final exam. All exams, including the final exam, have multiple-choice format. You must bring a #2 pencil to the exams. The two best midterm scores will be used to determine your course grade, the remaining one will be dropped. All midterm exams will be open book and closed notes; no written notes or additional sheets of paper are allowed during the exams, including the final. Calculators are allowed, but the use of laptop or other computers is forbidden. Texting or the use of cell phones during exams is considered cheating. There will no make-up exams given: If you miss a midterm exam it will count as your dropped exam, regardless of whether or not the absence is excused and approved by the university. Exams are property of the Department of Physics and Astronomy and are not returned. The in-class midterm exam schedule is provided below. The final exam will be at noon-3:00pm on Tuesday, December 11 in Physics Room 202 (our regular lecture room).

**Grading**

Your final grade will be determined according to:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>2 best midterm exams (15% each)</td>
<td>30%</td>
</tr>
<tr>
<td>homework</td>
<td>10%</td>
</tr>
<tr>
<td>lab grade</td>
<td>15%</td>
</tr>
<tr>
<td>final exam</td>
<td>45%</td>
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</tbody>
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The grading scale is as follows (points rounded to the nearest integer):

- A  89 - 100%
- A- 86 - 88%
- B+ 83 - 85%
- B  79 - 82%
- B- 76 - 78%
- C+ 73 - 75%
- C  69 - 72%
- C- 66 - 68%
- D  50 - 65%
- F  0 - 49%
Course Schedule

day  date  topic covered (tentative)  reading assignment
1  Tu Jan 10  special lecture: *The Higgs boson*  
2  Th Aug 16  nature of light  22.1, 23.1-23.2 
3  Tu Aug 21  geometrical optics  23.3-23.4 
4  Th Aug 23  geometrical optics  23.6-23.8 
5  Tu Aug 28  optical instruments  24.1-24.2 
6  Th Aug 30  interference  22.2 
7  Tu Sep 4  interference  22.3-22.4 
8  Th Sep 6  diffraction  22.5, 24.5 
9  Tu Sep 11  exam 1  
10  Th Sep 13  electric charge and force  25.1-25.5 
11  Tu Sep 18  electric charge and field  26.1-26.5 
12  Th Sep 20  electric charge and field  26.6-26.7 
13  Tu Sep 25  Gauss’s law  27.1-27.4 
14  Th Sep 27  Gauss’s law  27.5-27.6 
15  Tu Oct 2  electric potential  28.1-28.4 
16  Th Oct 4  electric potential  28.5-28.7 
17  Tu Oct 9  potential and field  29.1-29.4 
18  Th Oct 11  potential and field  29.5-29.6 
19  Tu Oct 16  exam 2  
20  Th Oct 18  electric current  30.1-30.5 
21  Tu Oct 23  dc current circuits  31.1-31.4 
22  Th Oct 25  dc current circuits  31.5-31.9 
23  Tu Oct 30  magnetic force  32.1-32.5 
24  Th Nov 1  magnetic force  32.6-32.8 
25  Tu Nov 6  Faraday induction  33.1-33.4 
26  Th Nov 8  Faraday induction  33.5-33.9 
27  Tu Nov 13  electromagnetic waves  34 
28  Th Nov 15  exam 3  
29  Tu Nov 27  quantum physics  38 
30  Th Nov 29  quantum physics  39 
Tu Dec 11  final exam  

Homework Schedule

<table>
<thead>
<tr>
<th>assignment</th>
<th>topic</th>
<th>due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>introduction to MasteringPhysics software</td>
<td>Aug 24 at 11:59pm</td>
</tr>
<tr>
<td>2</td>
<td>light &amp; optics</td>
<td>Aug 31 at 11:59pm</td>
</tr>
<tr>
<td>3</td>
<td>interference &amp; diffraction</td>
<td>Sep 14 at 11:59pm</td>
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<tr>
<td>4</td>
<td>electric field</td>
<td>Oct 5 at 11:59pm</td>
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<tr>
<td>5</td>
<td>electric potential</td>
<td>Oct 12 at 11:59pm</td>
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<tr>
<td>6</td>
<td>electric current &amp; magnetism</td>
<td>Nov 2 at 11:59pm</td>
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<tr>
<td>7</td>
<td>magnetic induction &amp; electromagnetic waves</td>
<td>Nov 16 at 11:59pm</td>
</tr>
<tr>
<td>8</td>
<td>quantum physics</td>
<td>Dec 7 at 11:59pm</td>
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Academic Honesty

All academic work must meet the standards contained in the document *A Culture of Honesty*, available at [www.uga.edu/honesty](http://www.uga.edu/honesty). Every student is responsible for knowing and understanding this policy. If you have any questions concerning this you are obligated to ask me for clarification. Anyone caught cheating will be reported to the university and will receive an F for the course.
General Information

This syllabus is a general plan for the course and deviations may be necessary. You are responsible for attending every lecture. Each student is responsible for the material discussed in class and the announcements made in class. Absence from class does not relieve one of this responsibility.

If you are retaking the course and are happy with the final lab grade you received previously, you do not have to attend the lab. You do have to remain registered for the lab, but you do not have to attend. Please contact Tom Barnello, the Lab Coordinator (email: tjbar@physast.uga.edu, tel: 706-542-2903) before the end of the drop/add period so that your seat may be made available to another student. If you would like to improve your lab grade, you must attend the lab and do all of the lab exercises again and take another lab final.