Spring 2013 Syllabus

Course: PHYS 214 Introduction to Physics II (4) 11 – 11:50 am M W Th F Darwin 35
Instructor: Dr. So Young Han, hanso@sonoma.edu, www.sonoma.edu/users/h/hanso/
Office Hours: W: 10 – 10:45 am, Th: 1 – 3 pm Darwin 300B, Tel.:664-3242

Course Description: The continuation of PHYS114. It covers electrostatics, quasi-static fields and currents, magnetostatics, electromagnetic induction, waves and optics.

Prerequisite: PHYS 114 and previous or concurrent enrollment in MATH 211
Text: Physics for Scientist and Engineers, 8th Edition by Raymond A. Serway and John W. Jewett published by Brooks/Cole

University Policies
There are important University policies that you should be aware of, such as the add/drop policy; cheating and plagiarism policy, grade appeal procedures; accommodations for students with disabilities and the diversity vision statement.
http://www.sonoma.edu/uaffairs/policies/studentinfo.shtml
http://www.sonoma.edu/UAffairs/policies/cheating_plagiarism.htm

Accommodations for Students with Disabilities
If you need disability related accommodations for this class, such as a note taker, test taking services, special furniture, use of service animal, etc., please contact the office of Disabled Student Services (DSS) located in Salazar Hall, Room 1049, Tel: 664-2677

Course Objectives
This course is a calculus-based introduction to the principles of electricity and magnetism, waves and optics. The expected outcomes from the PHYS214 are

1. Students should understand and be able to demonstrate their understanding of the principles and concepts introduced.
2. Students will practice logical thinking process, which is essential in science.
3. Students will develop cognitive understanding of science concepts through in-class demonstrations and exercises.
4. Students will discuss in pier groups to develop their cooperative skills and reinforce their understanding of concepts.
5. Students should develop problem solving skills and be able to apply method and appropriate technology such as mathematics and computer applications to the study of science.

Attitudes
Be respectable, be responsible and be productive.
Outline

Attendance: Attendance is mandatory. In case of an absence, the student is responsible for the learning experience and missing assignments made during his/her absence.

Grade:

Best 2 of 3 Exams + Final 60%
Homework 1 (Sampling learning) 15%
Homework 2 15%
Quiz 15%

A [93 above, A- [92-89], B+ [88-86], B [85-83], B- [82-79], C+ [78-76], C [75-73], C- [72-69], D [68-60], F [Below 60]

*(www.sonoma.edu/users/h/hanso/)
Most communication and the important dates will be posted on this web page. Check the instructor’s website frequently.

* Grades are based on an absolute scale, not a curve.

* Exam
No Make-up Exam/Quiz will be given.
You can drop one exam and one quiz score.
If you have above 90% average in exams (3) before the final, you may be excused from the final and the final exam grade will be recorded as 90%.

* Homework
We will use Sapling Web Assignments for homework.
It cost $30 and you can sign up at http://saplinglearning.com.

[Sapling Learning Setup]
1. a. If you already have a Sapling Learning account, log in, click "View Available Courses", then skip to step 3.

   b. If you have Facebook account, you can use it to quickly create a Sapling Learning account. Click "create account" located under the username box, then click "Login with Facebook". The form will auto-fill with information from your Facebook account (you may need to log into Facebook in the popup window first). Choose a password and timezone, accept the site policy agreement, and click "Create my new account". You can then skip to step 3.

   c. Otherwise, click "create account" located under the username box. Supply the requested information and click "Create my new account". Check your email (and spam filter) for a message from Sapling Learning and click on the link provided in that email.

2. Find your course in the list (listed by school, course, and instructor) and click the link.
3. Select your payment options and follow the remaining instructions.
4. Once you have registered and enrolled, you can log in at any time to complete or review your assignments.

* Class Participation
5 minute pop quizzes will be given without announcement. (Bonus points.)
The regular quiz schedule will be posted at www.sonoma.edu/users/h/hanso/

* In the class
Using a personal laptop or a phone is not allowed in class.
If you need to leave early you need to write a note.
## Tentative Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topic</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>W0</td>
<td>(Jan 14 - 18)</td>
<td>Introduction</td>
<td>Jan 21 Martin Luther King, Jr. Day</td>
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<tr>
<td>W1</td>
<td>(Jan 21- 25)</td>
<td>Topic 1</td>
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<tr>
<td>W2</td>
<td>(Jan 28-Feb 1)</td>
<td>Topic 2</td>
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<tr>
<td>W3</td>
<td>(Feb 4 - 8)</td>
<td>Topic 3</td>
<td>Exam1 on Feb 15</td>
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<td>W4</td>
<td>(Feb 11 - 15)</td>
<td>Topic 4</td>
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<tr>
<td>W5</td>
<td>(Feb 18 - 22)</td>
<td>Topic 5</td>
<td>Exam2 on Mar 15</td>
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<tr>
<td>W6</td>
<td>(Feb 25 – Mar 1)</td>
<td>Spring Break (Mar 18-22)</td>
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<td>W7</td>
<td>(Mar 4 - 8)</td>
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<td>W8</td>
<td>(Mar 11 - 15)</td>
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<td>W9</td>
<td>(Mar 18 - 22)</td>
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<td>W10</td>
<td>(Mar 25 - 29)</td>
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<tr>
<td>W11</td>
<td>(Apr 1 - 5)</td>
<td>Topic 6</td>
<td>Exam3 on Apr 19</td>
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<td>W12</td>
<td>(Apr 8 - 12)</td>
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<td>W13</td>
<td>(Apr 15 - 19)</td>
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<td>W14</td>
<td>(Apr 22 - 25)</td>
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<tr>
<td>W15</td>
<td>(Apr 29 – May 3)</td>
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**Final Exam:** (May 6 Monday 11am – 12:50 pm)

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### Orientation and Introduction

**Topic1. Waves**  
Chap. 15, 16, 17, 18

- 16 Wave Motion
- 17 Sound
- 15 Oscillatory Motion
- 18 Superposition and Standing Waves

**Topic2. Electricity I: Electrostatics**  
Chap. 23, 24, 25

- 23 Electric fields
- 24 Gauss’s law
- 25 Electric Potential

**Topic3. Electricity II: Current Electricity, Capacitance**  
Chap. 27, 28, 26

- 27 Current and Resistance
- 28 Direct-Current Circuits
- 26 Capacitance and Dielectrics

*32 Inductance (Self Induction and RL Circuits)*
*33 Alternating Current Circuits (AC Sources, Resistors in an AC Circuit)*

**Topic4. Magnetism**  
Chap. 29, 30, 31

- 29 Magnetic Fields
- 30 Sources of the Magnetic Field
- 31 Faraday’s Law

**Topic5. Light and Geometric Optics**  
Chap. 34, 35, 36

- 34 Electromagnetic Waves
- 35 The nature of light and the principles of Ray Optics
- 36 Image Formation

**Topic6. Wave Optics**  
Chap. 37, 38

- 37 Wave Optics (Interference, Young’s Double-Slit Experiment, Michelson Interferometer)
- 38 Diffraction Patterns and Polarization