Physics342
Sonoma State University

Fall 2009 Syllabus

<table>
<thead>
<tr>
<th>Course</th>
<th>PHYS 342 Light and Color 1:00 – 2:15 pm Tu Th Dar37</th>
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<tbody>
<tr>
<td>Instructor</td>
<td>Dr. So Young Han</td>
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<tr>
<td>Contact Information</td>
<td>Tel. 664-3242, Darwin 3008, E-mail: <a href="mailto:hanso@sonoma.edu">hanso@sonoma.edu</a></td>
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<tr>
<td>Office Hours</td>
<td>Tu Th 10:45 – 11:45 am</td>
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<tr>
<td>Text</td>
<td>Seeing the Light Falk/ Brill/Stork</td>
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Course Descriptions

A descriptive, nonmathematical but analytical treatment of the physical properties of light, the camera, telescope, microscope, holography, rainbows and the blue sky; colors in flowers, gems, and pigments; human and animal vision and visual perception. Satisfies GE, category B3. (Specific Emphasis in Natural Sciences)

Prerequisite: any physical science course or consent of instructor.

Course Objectives

The expected outcomes from the PHYS342 are

1. Students will be introduced to familiar optical phenomena and technology.

2. Students should realize that physics is not a subject of math/science oriented people but a subject of nature.

3. Students should understand and be able to demonstrate their understanding of basic principles and ideas introduced.

4. Students will develop logical thinking processes which are essential in science.

5. Students will discuss in pier groups to develop their cooperative skills and reinforce understanding of concepts.

Learning Objectives Specific to Physics and Astronomy

1. Knowledge, understanding and use of the principles of physics and/or astronomy.

2. Ability to use reasoning and logic to define a problem in terms of principles of physics.

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. (Go to this URL to find them: http://www.sonoma.edu/uaffairs/policies/studentinfo.shtml)
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.

Materials to bring: Text Book
Class Notes in a folder

Grade:

- Best 2 of 3 (2 Exams + Final) 50%
- Homework 20%
- Quiz 20%
- Attendance and Participation 10%

* 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.
* Homework
  Each homework assignment will be posted at www.sonoma.edu/users/h/hanso/
  The homework should be submitted before 5 PM on due-dates.
  On the homework due-date, there will be a quiz out of the homework problems.
  There is a 20% deduction in the late homework scores.
  Include questions in the homework and mark the final answers with units.
  Reading text book is required before and after classes.
* Class Participation
  10 % of the course grade will be allocated to class participation.
  Absence
  Group Project
  5 minute pop quizzes will be given without announcement. (Bonus to the exam scores.)
**Tentative Schedule**

**Introduction:** What is light? Properties of lights, Waves and E&M waves  
Chap. 1

**Geometric Optics:** Reflection, Refraction, Dispersion, Mirrors and Lenses  
Chap. 2, 3

**Camera:** Camera and Photography  
Chap. 4

**Eye I:** Producing the Image, Eyeglasses and Optical Instruments  
Chap. 5, 6

**Eye II:** Eye I: Processing the Image and Binocular Vision  
Chap. 7, 8

**Color:** Color Perception Mechanism  
Chap. 9, 10

**Other Optical Phenomena:** Interference, Polarization, Holography  
Chap. 12-14

| W1 | (Aug27) |
| W2 | (Sep 1 – Sep 3) |
| W3 | (Sep 8 – Sep10) |
| W4 | (Sep15 – Sep17) |
| W5 | (Sep22 – Sep24) |
| W6 | (Sep29 – Oct 1) |
| W7 | (Oct 6 – Oct 8) |
| W8 | (Oct13 – Oct15) |
| W9 | (Oct20 – Oct22) |
| W10 | (Oct27 – Oct29) |
| W11 | (Nov 3 – Nov 5) |
| W12 | (Nov10 – Nov12) |
| W13 | (Nov17 – Nov19) |
| W14 | (Nov24 – Nov26) |
| W15 | (Dec 1 – Dec 3) |
| W16 | (Dec 8 – Dec10) |

(Sep17) Exam1

(Oct15) Exam2

(Nov 12) Exam3

Days of Furlough: [Sep 18, 24T], [Oct 9, 20T], [Nov 20, 24T, 30], [Dec 4, 7]  
**Final Exam:** (December 17 Thursday 2 – 3:50 pm)