

## Fall 2009 Syllabus

<b>Course</b>	:	PHYS 342 Light and Color	1:00 – 2:15 pm	<b>Tu Th</b>	Dar37
<b>Instructor</b>	:	Dr. So Young Han			
<b>Contact Information:</b>		Tel. 664-3242, Darwin 300B, E-mail: <a href="mailto:hanso@sonoma.edu">hanso@sonoma.edu</a> <a href="http://www.sonoma.edu/users/h/hanso/">www.sonoma.edu/users/h/hanso/</a>			
<b>Office Hours</b>	:	<b>Tu Th</b> 10:45 – 11:45 am			
<b>Text</b>	:	<b>Seeing the Light</b> Falk/ Brill/Stork			

### 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/](http://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

<b>Introduction:</b> <i>What is light? Properties of lights, Waves and E&amp;M waves</i>	Chap.1
<b>Geometric Optics:</b> <i>Reflection, Refraction, Dispersion, Mirrors and Lenses</i>	Chap. 2, 3
<b>Camera:</b> <i>Camera and Photography</i>	Chap.4
<b>Eye I:</b> <i>Producing the Image, Eyeglasses and Optical Instruments</i>	Chap. 5, 6
<b>Eye II: Eye I:</b> <i>Processing the Image and Binocular Vision</i>	Chap. 7, 8
<b>Color:</b> <i>Color Perception Mechanism</i>	Chap. 9, 10
<b>Other Optical Phenomena:</b> <i>Interference, Polarization, Holography</i>	Chap. 12-14

W1	(Aug27)	
W2	(Sep 1 – Sep 3)	
W3	(Sep 8 – Sep10)	
W4	(Sep15 – Sep17)	(Sep17) Exam1
W5	(Sep22 – Sep24)	
W6	(Sep29 – Oct 1)	
W7	(Oct 6 – Oct 8)	
W8	(Oct13 – Oct15)	
W9	(Oct20 – Oct22)	(Oct15) Exam2
W10	(Oct27 – Oct29)	
W11	(Nov 3 – Nov 5)	
W12	(Nov10 – Nov12)	(Nov 12) Exam3
W13	(Nov17 – Nov19)	
W14	(Nov24 – Nov26)	
W15	(Dec 1 – Dec 3)	
W16	(Dec 8 – Dec10)	

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)