Syllabus

Course: PHYS342 Light and Color 1:00 – 2:15 pm TR Stevenson3049
Instructor: Dr. So Young Han
Contact Information: E-mail: hanso@sonoma.edu, Darwin 300B, Tel.:664-3242
www.sonoma.edu/users/h/hanso/
Office Hours: MWR : 10 – 10:45 am Darwin 300B
Text: Seeing the Light by Falk/Brill/Stork (Recommended)

Course Description
A descriptive, nonmathematical but analytical treatment of the physical properties of light, the camera, telescope, microscope, holography, colors, 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 Objective
1. Students will be introduced to familiar optical phenomena and technology.
2. Students should realize that physics is not a subject for the math or science oriented people but a subject of nature.
3. Students will practice thinking in a logical process, which is essential in science.
4. Students will develop cognitive understanding of science concepts through in-class demonstrations and exercises.
5. Students will discuss in peer groups to develop their cooperative skills and reinforce their understanding of concepts.

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

[Academic Integrity]
Students are expected to be honest in meeting the requirements of courses in which they are enrolled. Do not look up solutions to homework problems online or copy solutions from your peers. Cheating or plagiarism is dishonest, undermines the necessary trust upon which relations between students and faculty are based, and is unacceptable conduct. Students who engage in cheating or plagiarism will be subject to academic sanctions.

[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 Salazar1049, Tel: 664-2677 www.sonoma.edu/uaffairs/policies/disabilitypolicy.htm
**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 (2 exams + Final) 40%
- Homework 15%
- Quiz 20%
- Special Projects 25%

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]

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

* Exam and quizzes
  - You can drop one exam (and quiz) score.
  - You will have a quiz on the homework due date.
  - If you have above 90% average in exams before the final, you may be excused from the final exam and the final exam grade will be recorded as 93%.

* Homework
  - Each homework assignment will be posted at [www.sonoma.edu/users/h/hanso/](http://www.sonoma.edu/users/h/hanso/).
  - You may submit a late homework no later than 1 week after the due.
  - There is a 10% deduction in the late homework scores.
  - Write homework questions and show your works. Draw a box around the final answer.

* Special Projects
  - You will have 2-3 in-class projects this semester.

* Class Participation: Be respectful, be responsible and be productive.
  - You will have group discussions and In-Class Hands-on practices.
  - Pop quizzes will be given without announcement. (Bonus Points)
  - The attendance will be checked randomly. Your absence (excused or not) can affect your class performance. To pass the course, you can not have more than 5 absences.
  - 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**

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>W1</td>
<td>(Aug25)</td>
<td>Introduction</td>
</tr>
<tr>
<td>W2</td>
<td>(Sep 1)</td>
<td>Topic 1: Properties of Light</td>
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<tr>
<td>W3</td>
<td>(Sep 8)</td>
<td>Topic 2: Rule of Light: Geometric Optics</td>
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<tr>
<td>W4</td>
<td>(Sep15)</td>
<td>Topic 3: Mirror and Lenses</td>
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<td>W5</td>
<td>(Sep 22)</td>
<td>Topic 4: Camera and photography</td>
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<tr>
<td>W6</td>
<td>(Sep29)</td>
<td>Topic 5: Optical Devices and Eye I: Producing an image,</td>
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<tr>
<td>W7</td>
<td>(Oct 6)</td>
<td>Topic 6: Eye II: Processing the Image</td>
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<td>W8</td>
<td>(Oct13)</td>
<td>Topic 7: Binocular Vision and Seeing 3D</td>
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<td>W9</td>
<td>(Oct20)</td>
<td>Topic 8: Color and Color Perception Mechanism</td>
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<td>W10</td>
<td>(Oct27)</td>
<td>Thanksgiving Holiday</td>
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<tr>
<td>W11</td>
<td>(Nov 3)</td>
<td>Topic 9: Other Optical Phenomena:</td>
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<td>W12</td>
<td>(Nov10)</td>
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<td>W13</td>
<td>(Nov17)</td>
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<td>W14</td>
<td>(Nov24)</td>
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<tr>
<td>W15</td>
<td>(Dec 1)</td>
<td>Final Exam: (Dec17 Thursday 2 – 3:50 pm)</td>
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<tr>
<td>W16</td>
<td>(Dec 8)</td>
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Exam1 Sep24
Exam2 Nov12
Semester at a Glance PHY342

Questions:
- What is Light? What do we know about light?
- Seeing light and Visual perception

Light? :
- Topic 1. Properties of Light
- Topic 2. Rule of Light (Geometric Optics)
- Topic 3. Mirror and Lenses

Optical Device:
- Topic 4. Cameras and Photography
- Topic 5. Eye I, Telescopes and Microscopes

Visual Perception:
- Topic 6. Eye II (Optical Processing)
- Topic 7. Binocular Vision and 3D
- Topic 8. Colors and Color Perception

Other Optical Phenomena:
- Interference and Diffraction
- Polarization
- Holography