

## Light and Color PHYS 125 Syllabus

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Office hours: Anytime during the day, you are welcome to stop by. But I may be hiding in the lab, so email is always a good way to catch me.

### Course requirements:

Textbook: Seeing the light  
By D. Falk, D. Brill and D Stock. (Published by John Wiley & Sons, Inc)

Lectures: Tuesday and Thursday 3:00 pm - 4:15 pm, KT 132

Grading: Homework assignments .....30%  
In class quizzes .....20%  
Midterm Exam 1 (Thur. 02/05).....10%  
Midterm Exam 2 (Thur. 03/05).....10%  
Midterm Exam 3 (Tue. 04/2) .....10%  
Final Exam .....20%

### General Policies:

- Final grade assignment:  
A<sup>+</sup> = 97%-100% (4.0GP)    A = 93-96.99% (4.0 GP)    A<sup>-</sup> =90%-92.99% (3.7 GP)  
B<sup>+</sup> = 87%-89.99% (3.3GP)    B = 83-86.99% (3.0 GP)    B<sup>-</sup> =80%-82.99% (2.7 GP)  
C<sup>+</sup> = 77%-79.99% (2.3GP)    C = 73-76.99% (2.0 GP)    C<sup>-</sup> =70%-72.99% (1.7 GP)  
D<sup>+</sup> = 67%-69.99% (1.3GP)    D = 63-66.99% (1.0 GP)    D<sup>-</sup> =60%-62.99% (0.7 GP)  
F = 0-59.99% (0 GP)
- Homework assignments are due by 4:30 on the indicated dates. Late submission may be accepted for partial credit. One half of the full score of that assignment will be taken off **PER DAY** past due.
- All in class quizzes are “pop-up” quizzes. Absolutely **NO** make-up quizzes.
- You get 0.25 points bonus credit for pointing out each mistake I made on the blackboard, (no matter how silly it is), up to 5 points total for the semester. So, stop me if you catch my mistake, please.

### Objective of the class:

This is a general education course. The course is designed to help you obtain the fundamental, yet very important knowledge about light and color, as well as a general picture of science, physics, and optics. More importantly, the lecture will involve heavy discussions to help you build the skills for critical thinking and logical analyses.

Therefore, you are encouraged to apply the knowledge to explain the problems you may come across in your life.

## Tentative Schedules

| Week       | Days      | Activities   |
|------------|-----------|--|
| 1/13       | T         | Introduction                                       |
|            | Th        | Ch0. What is science                               |
| 1/20       | T         | Ch1. What is light                                 |
|            | Th        | Ch2. Geometric optics                              |
| 1/27       | T         | Ch2. Reflection and refraction                     |
|            | Th        | Ch3. Mirrors and lenses                            |
| 2/3        | T         | Ch3. Image formation                               |
|            | Th        | <b>Midterm Exam I</b>                              |
| 2/10       | T         | Ch3. More on image.                                |
|            | Th        | Ch4. Camera and photography                        |
| 2/17       | T         | Ch4&6. Optical instruments                         |
|            | Th        | Ch4&6. Optical instruments II                      |
| 2/24       | T         | Ch5. Vision  |
|            | Th        | Ch5, 7-8. Light and visual effect                  |
| 3/3        | T         | Ch7-8. Visual effect II                            |
|            | Th        | <b>Midterm Exam II</b>                             |
| 3/10       | T         | <del>Spring Break</del>                            |
|            | Th        | <del>Spring Break</del>                            |
| 3/17       | T         | Ch9. Color I                                       |
|            | Th        | Ch9-10. Color II                                   |
| 3/24       | T         | Ch10-11. Color III                                 |
|            | Th        | Ch9-11. Color IV                                   |
| 3/31       | T         | Spillovers: color and visual effect                |
|            | Th        | <b>Midterm Exam III</b>                            |
| 4/7        | T         | Spillovers: color and visual effect                |
|            | Th        | Ch12. Waves  |
| 4/14       | T         | Ch12. Wave property of light                       |
|            | Th        | Ch12. Wave property of light II                    |
| 4/21       | T         | Ch12-13. Scattering and polarization               |
|            | Th        | Ch 12: impact of wave optics on visual effect      |
| 4/28       | T         | Spillover: advanced topics                         |
|            | Th        |  |
| <b>5/7</b> | <b>Th</b> | <b>Final Exam on Thursday, May 7, 10:30-12:30.</b> |