

PHY 3400

Light, Color, and Holography



Fall 2007 - Section 3255

Instructor:

Prof. Steve Hagen
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Office hours: Monday & Wednesday, 9:30 – 10:30 am

Textbook (required):

Seeing the Light: Optics in Nature, Photography, Color,
Vision, and Holography
By David R. Falk, Dieter R. Brill, David G. Stork
ISBN 0471603856

A copy is available at the reserve desk of the Marston Science
Library. Used copies are also available online for less than \$50
See <http://www.bestwebbuys.com/9780471603856>

Class Meetings:

Monday, Wednesday, Friday
8:30 – 9:20 am (2nd period)
Room NPB 1002 (New Physics Building)

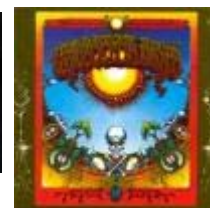
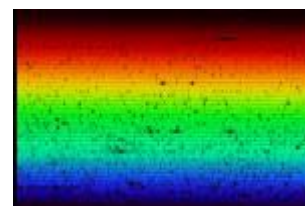
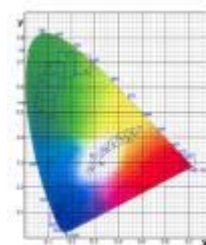
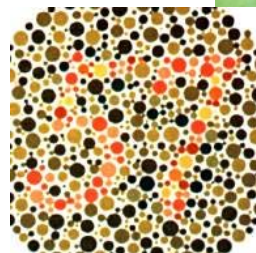
Goals:

PHY 3400 provides a basic introduction to the physics of light, including its fundamental nature (what is light?), how we perceive and describe color, geometrical optics, optical phenomena in nature, and instruments that exploit optical principles. The course is aimed at non-science majors, and there are no formal prerequisites. A working knowledge of basic algebra and trigonometry is required however.

The course will emphasize the understanding of basic physical principles through real examples and experiments, always with the goal of being able to solve problems and understand nature.

Topics covered:

Physical nature of light (waves, particles, energy)
Color (primary colors, lighting, paints, color printing)
Vision (anatomy of the eye, color vision, color deficiency)



Optics (reflection, refraction, lenses, mirrors, cameras, microscopes, etc.)
Interference and diffraction (including gratings, soap bubbles, coherence & incoherence)
Natural optical phenomena (rainbows, blue skies, and such natural phenomena)
Special topics (Lasers, holography)

Website:

The class website will be maintained on the UF “E-learning” WebCT server. This allows us to post confidential student grade information, homework and exam solutions, etc. without violating either student privacy or copyright law. The Instructor will assume that all students regularly visit the WebCT site and read the announcements and other information posted there. Since all policies & procedures outlined in this syllabus are subject to change, you should consider the website to be the definitive source of current information about policies and procedures. To access the site, go to <http://lss.at.ufl.edu> and click on *E-Learning System*. Use your Gatorlink ID to log in.

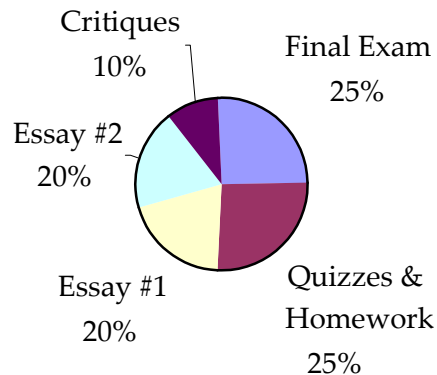
Final Exam:

There will be a two-hour, comprehensive final examination:
Friday, December 14, 2007 7:30 – 9:30 am Exam group 14A

Grading Policy:

Grading will be based on regular in-class quizzes, assigned homework, two essays (each of 1200+ word length), and the final examination. Details on the essays and critiques will be provided in class. The final grade will be calculated as follows:

25%	Quizzes and HW
20%	Essay #1
5%	Critique of essay #1
20%	Essay #2
5%	Critique of essay #2
<u>25%</u>	<u>Final Examination</u>
100%	Total



Attendance:

Regular class attendance is definitely expected. Mastery of the course material will require each student to make a sustained and consistent investment of effort throughout the semester. Class attendance is part of that effort.

A student who stops participating in the class – *i.e.* who ceases attending class, doing homework, communicating with the instructor, taking quizzes/exams – should drop the course, because otherwise a failing grade is certain. No special end-of-semester arrangements (such as make-up work, late-drop petitions, incomplete grades, signatures on various forms, etc.) will be provided to any student who simply disappeared for a substantial portion of the semester. Such accommodations are only available to students who have participated in class and kept in regular contact with the instructor during the term.

Registration status:

Unfortunately the instructor cannot approve requests to audit PHY3400. Every student must register formally and take the class for credit. Coursework of unregistered students is not graded.

Incomplete grades:

UF policy is designed to discourage instructors from giving incomplete grades. Per this policy, a student may request a grade of Incomplete only if (a) an unusual hardship prevents the student from completing the course, and (b) the student carries a passing grade average at the time the request is made, and (c) the student shows diligence and responsibility in making the request in a timely fashion once the unusual hardship arises. The request certainly cannot be made after the final examination. The Instructor adheres blindly and rigidly to this policy.

Make-ups:

The Instructor believes that make-ups are intrinsically unfair. This unfairness can be mitigated (but not eliminated) by keeping the number of make-ups to an absolute minimum. A make-up for a missed exam will be granted only in a dire situation. (A student who lacks diligence in contacting the instructor once this dire situation arises is unlikely to be granted the make-up.) There will be no makeups for missed quizzes. Some students may nevertheless suffer from a severe personal or family emergency that forces them to miss an in-class activity or quiz: Therefore, the two lowest quiz scores will be dropped when final grades are calculated.

Privacy

Student academic records are confidential, under federal law. I will not answer emailed questions about your grades, unless the email comes from your UF email or WebCT account. Parents cannot seek information on student attendance, grades, performance, etc, either by phone or email.

Professional behavior:

It is a sad commentary on the 21st century that some people need to be reminded of appropriate classroom behavior. Frequent lateness, entering and leaving the classroom during the lecture, reading the ALLIGATOR during class, clacking away at email or instant messaging during class, cellphone rings, etc., are all rude and distracting. They disrupt the orderly operation of the classroom – in violation of the Student Conduct Code. Please show courtesy and respect for yourself and your colleagues by avoiding such distracting behavior.

Students with Disabilities:

Students who will require a classroom accommodation for a disability must contact the Dean of Students Office and request proper documentation. Upon bringing that documentation to the Instructor, the student will be given the appropriate accommodations. No accommodations are available to students who lack this documentation.

It is the policy of the University of Florida that the student, not the instructor, is responsible for arranging accommodations when needed. The instructor will not remind the student to schedule

accommodations prior to each quiz or exam. If you require extra time for in-class work, you must initiate this request at least seven days before the exam or quiz.

Academic Honesty:

All students are expected to hold themselves to a high standard of academic honesty. It is normal and reasonable for students in a physics course to work together on homework. However, students must work alone on all other graded assignments (tests, quizzes, exams). Giving or receiving any unauthorized assistance during such an assignment will be treated as a deliberate violation of the UF Academic Honesty policy. This will result in a failing grade in Phy3400. Partial or total plagiarism on any written work is always regarded as academic dishonesty: I will assume that all students are familiar with the definition of plagiarism. See, for example, the UF Writing Program definition:

<http://www.writing.ufl.edu/PolicyStatementsPlagiarism.html>