

**Course Information**  
**PHYS 3330**  
**Fall 2009**  
**TR 09:30 - 10:45, Room 302, Physics Building**

PHYS 3330 is a one semester, three credit course in physical optics:  
Electromagnetic Waves in Vacuum and in Media, Ray Tracing, Interference, Diffraction,  
Fourier Optics, Quantization of Radiation, Laser, Non-Linear Optics

Instructor: Dr. U. Happek  
Room 236, Physics Building  
uhappek@physast.uga.edu

Office Hours: TR, 11:00 - 12:00

In addition to these times, I have an open door policy: if the door of my office is open,  
you are welcome to talk to me, for any reason.

Textbook: J. Peatross and M. Ware, Physics of Light and Optics  
This is an on-line book, free of charge. We will provide copies at printing costs.

Web page: Course information, including homework assignments, will be posted on  
<http://www.physast.uga.edu/classes/phys3330/happek>

Optics Lab:

The laboratory session is an important part of the course. You will be assigned to a session  
that meets every other Friday, from 13:25 to 16:15. The Lab will start on August 28.

Topics:

The topics given below might be subject to changes, and these changes will be announced  
in class.

i) Introduction

Geometrical Optics, Ray Tracing, Optical Instruments

ii) Electromagnetic Waves

Waves, Poynting Vector, Dispersion

iii) Fourier Optics

Fourier Series, Fourier Transforms

iv) Diffraction

Fraunhofer, Fresnel Diffraction, Kirchhoff

v) Coherence

Coherence, Fabry-Perot, Thin Films, Michelson Interferometer, Holography

vi) Quantum Optics

Black Body Radiation, Stimulated Emission, Laser

vii) Nonlinear Optics

Homework: Assigned weekly

Grading: 40% Homework, 10% Class Participation, 30% Lab, 20% Final Presentations

Grading Scale

A: 90 - 100

A-: 88-89

B+: 86-87

B: 80 - 85

B-: 78 - 79

C+: 76- 77

C: 70 - 75

C-: 68 - 69

D: 50 - 67

F: 0 - 49

Withdrawals

The Instructor will follow the University Rules in dealing with requests for withdrawals.