

Course Information
PHYS 3330
Fall 2007
TR 14:00 - 15:15, 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: MW, 11:00 - 12:15

Textbook: Geoffrey Brooker, Modern Classical Optics. Oxford University Press.

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 on Friday, from 13:25 to 16:15. The Lab will start on August 31.

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: 20% Homework, 30% Tests, 30% Lab, 20% Final

Grading Scale

A: 90 - 100

A-: 88-89

B+: 86-87

B: 80 - 84

B-: 78 - 79

C+: 76- 77

C: 70 - 75

C-: 65 - 69

D: 50 - 64

F: 0 - 49

Withdrawals

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