

**Optics Dr. Braslavsky**

**Physics 423/523  
Geometrical and Physical Optics  
Spring 2009  
Call# 05768/05776**

**Instructor** Dr. Ido Braslavsky  
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**Office Hrs** By appointment

**Required book:**

Introduction to Optics, Pedrotti, 3<sup>th</sup> ed, ISBN 0-13-149933-5

**Suggested reading:**

Optical Physics, Lipson, 3<sup>rd</sup> ed, ISBN 0-521-43631

**Class meets** M,T,W,F Clippinger 132A 12:10 - 1:00

**Subjects:** We will study two chapters a week. Reading of the chapters before the classes is required. Please consult this table to the order of the chapters we will cover.

Week date	Chapters in Pedrotti ed 3	Subject
3/30/09 - 4/3/09	Ch 1 Ch 2	Nature of light Geometrical optics
4/6/09 - 4/10/09	Ch 18 Ch 3	Matrix Method in Paraxial Optics Optical Instrumentation
4/13/09 - 4/17/09	Ch 19 Ch 4	Optics of the Eye Wave Equations
4/20/09 - 4/24/09	Ch 5 Ch 23	Superposition of Waves Fresnel Equations
4/27/09 - 5/1/09	Ch 15 Midterm	Production of Polarized Light
5/4/09 - 5/8/09	Ch 6 Ch 7	Properties of Lasers Interference of Light
5/11/09 - 5/15/09	Ch 8 Ch 9	Optical Interferometry Coherence
5/18/09 - 5/22/09	Ch 11 Ch 21	Fraunhofer Diffraction - Image Formation Fourier Optics
5/26/09 - 5/29/09	Ch 12 Ch 16	The Diffraction Grating Holography
6/1/09 - 6/5/09	Ch 17 Ch 28	Optical detectors and Displays Selected Modern Applications

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### Grading policy

	Contribution toward the final grade
Assignments	40%
Midterm Exam	30%
Final Exam	30%
<b>Total</b>	<b>100%</b>

### Assignments

Homework problems will be assigned weekly. The homework will count 40% toward the final grade. Due date will be specify with each assignment.

### Midterm exam

There will be one, midterm exam that will count 30% toward the final grade. It will be 2 hour exam and will take place in April 29.

### Final Exam

The final exam is a two-hour exam and will be comprehensive. The final exam will count 30% toward the final grade. The final exam will be (as in the schedule of classes June 12, at 12:40 PM in Clippinger 132A)

**Math for the course:** Fourier transform, convolution, linear algebra, matrix multiplication, complex functions, partial differentials and path integrals.

### Reminder of university policy regarding misconduct:

Cheating on examinations, submitting work of others as your own, or plagiarism in any form will result in penalties ranging from an  $F$  on the assignment to expulsion from the university, depending on the seriousness of the offense.