

2023 Fall Semester 光學一 Optics I

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Time: Tuesday and Thursday 10:10 ~ 11:30 in [Room 501](#) of physics building

Textbook: "Optics" by Eugene Hecht, 5th Ed (Pearson global edition)

*Background knowledge of electromagnetism is strongly recommended but not required.

Grades: Exams 30 % × 2, homework 40 %.

Homework: There will be a homework assignment in approximately every two weeks.

Schedule (subject to change):

Week	Date (Tue. Thu.)	Covered materials
1	9/12, 9/14	Introduction, history, wave-particle duality
2	9/19, 9/21	Wave motion
3	9/26, 9/28	Electromagnetic theory
4	10/3, 10/5	Propagation of light
5	10/10, 10/12	Geometric optics I
6	10/17, 10/19	Geometric optics II, matrix method
7	10/24, 10/26	Gaussian beams
8	10/31, 11/2	Optical resonators
9	11/7, 11/9	Midterm Exam, Using software
10	11/14, 11/16	Superposition of waves
11	11/21, 11/23	Fourier analysis
12	11/28, 11/30	Polarization I
13	12/5, 12/7	Polarization II
14	12/12, 12/14	Interference
15	12/19, 12/21	Interferometers
16	12/26, 12/28	Review homework, Final Exam
17	1/2, 1/4	Applications (Online course)
18	1/11, 1/13	Selected topics (Online course)

Material left for next semester: Diffraction, Fourier optics, Coherence, Lasers, Quantum optics, Nonlinear optics, Light-atom interaction, Laser spectroscopy and special topics.

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