

PHY4424 Optics 1 Course Schedule. Subject to change as semester progresses.

Week	Day	Date	Lecture topic	Reading	Assignments
1	Mon.	Aug 31	Course Introduction	Canvas page	
	Wed.	Sept. 2	History of light / useful math background	K&F 1.1, PP&P 1.1	
	Fri.	Sept. 4	Fermat's principle and Huygens' principle	K&F 1.2, 1.3, PP&P 2.1, 2.2	
2	Mon.	Sept. 7	NO CLASS (Labor day)	-	
	Wed.	Sept. 9	Maxwell's equations and the wave equation	K&F 1.4, PP&P 4.8	
	Fri.	Sept. 11	Solutions to the wave equation (plane, spherical, cylindrical)	K&F 1.3, PP&P 4.5,4.6,4.7	HW1 Due
3	Mon.	Sept. 14	Poynting vector and energy transport	K&F 1.4	
	Wed.	Sept. 16	Maxwell equations in matter, D and H fields	K&F 2.1	
	Fri.	Sept. 18	Refractive index, absorption and dispersion	K&F 2.1, PP&P 23-6	HW2 Due
4	Mon.	Sept. 21	Energy transport in media, boundary conditions	K&F 2.2, PP&P 32-1	
	Wed.	Sept. 23	Law of reflection and refraction	K&F 2.2, PP&P 23-1	
	Fri.	Sept. 25	Fresnel equations for s- and p-pol light, external reflection	K&F 2.2, PP&P 32-2	
5	Mon.	Sept. 28	Brewster's angle and total internal reflection	K&F 2.2, PP&P 32-2	HW 3 Due
	Wed.	Sept. 30	Path to geometrical optics	K&F 3.1, PP&P 2.0	
	Fri.	Oct. 2	Ray tracing	K&F 3.1, PP&P 2-4	
6	Mon.	Oct. 5	Reflection and refraction from spherical surfaces	K&F 3.1	HW 4 Due
	Wed.	Oct. 7	Paraxial approximation	K&F 3.2	
	Fri.	Oct. 9	Matrix methods for light propagation	K&F 3.3, PP&P 18	
7	Mon.	Oct. 12	Image formation	K&F 3.4, PP&P 2.6	
	Wed.	Oct. 14	Ray diagrams	K&F 3.4.B	Midterm 1 Open
	Fri.	Oct. 16	Principal planes	K&F 3.3.C	
8	Mon.	Oct. 19	Lateral and angular magnification	K&F 3.4, PP&P 3-5	Midterm 1 Due
	Wed.	Oct. 21	Reflections from curved mirrors	K&F 3.2.B PP&P 2.7	
	Fri.	Oct. 23	Human eye	K&F 3.5.1, PP&P 19	
9	Mon.	Oct. 26	Simple camera lens	K&F 3.5, PP&P 3-4	HW 5 Due
	Wed.	Oct. 28	Magnifiers and eyepieces	K&F 3.5, PP&P 3-5	
	Fri.	Oct. 30	Microscope	K&F 3.5, PP&P 3-6	
10	Mon.	Nov. 2	Telescope	K&F 3.5.B, PP&P 3.7	HW 6 Due
	Wed.	Nov. 4	Stops, windows and apertures	K&F 4.1, PP&P 3-1	
	Fri.	Nov. 6	Radiometry and photometry	K&F 4.2	
11	Mon.	Nov 9	Aberrations	K&F 4.3, PP&P 3-2	HW 7 Due
	Wed.	Nov. 11	NO CLASS (Veteran's day)		
	Fri.	Nov. 13	Basics of laser operation	PP&P 6-5, 6-6	
12	Mon.	Nov. 16	Characteristics of laser light	PP&P 6-7, 6-8	
	Wed.	Nov. 18	Two beam interference	K&F 5.1, PP&P 7-1	
	Fri.	Nov. 20	Multiple beam interference	K&F 5.2, PP&P 7-9	
13	Mon.	Nov. 23	Michelson interferometer	PP&P 8-1, 8-2, 8-3	HW 8 Due
	Wed.	Nov. 25	Fabry-Perot interferometer	PP&P 8-4, 8.5, 8.6	
	Fri.	Nov. 27	NO CLASS (Thanksgiving)	-	
14	Mon.	Nov. 30	Diffraction	K&F 6.1, 6.2, PP&P 11	
	Wed.	Dec. 2	Diffraction continued	K&F 6.3, 6.4, PP&P 13	
	Fri.	Dec. 4	Class presentations on research paper	-	Midterm 2 Open
15	Mon.	Dec. 7	Special topic	?	
	Wed.	Dec. 9	Special topic	?	Midterm 2 Due