

Spring 2026 – PHYSICS 3034 – R.Sonnenfeld

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SCHEDULE – (Rev. A2– 02/06/2026)

Wk	Date	Class Topic	Reading	Asst.	HW Asst.
1	1/21 1/23/25	[1] Geometric Optics Principal Rays [2] Lensmaker Equation	Ch 2–2.6 (Pedrotti) Ch 2.7–2.11		
2	1/26 1/28 1/30	[3] Matrix optics [4] Matrix optics thick lenses [5] Matrix optics	18.1–18.5 (Ped.) 18.6–18.8		HW01
3	2/2 2/4 2/6	[6] Overview, Maxwell in Integral and Diff Form [7] B-field energy, Continuity Eqn → Maxwell Disp. Current [8] Energy Continuity & Poynting's Theorem	7.3.1–7.3.3 (Griffiths)		
4	2/9 2/11 2/13	[9] Derive Poynting Th'm, Examples [10] Mech Waves → Wave Eqn, $k \omega$, Waves in 1D [11] \vec{k} , Complex arithmetic for waves	8.1.1–8.1.2		HW02
5	2/16 2/18 2/20	[12] 1-D Reflection & Transmission [13] 1-D Ref.Trans., 3-D Plane Waves [14] Energy and Momentum of EM Plane Waves	Ch. 9.1.3–9.1.4 9.2.1–9.2.2 9.2.3		
6	2/23 2/25 2/27	[15] Poynting vector and intensity of plane waves [16] Test 1 [17] EM waves boundary conditions	9.3.1 9.3.1		
7	3/2 3/4 3/6	[18] Reflection and Refraction [19] Snell's Law [20] Polarization and Brewster's Angle	9.3.2 9.3.3.		HW04
8	3/9 3/11 3/13	[21] Polarization and Brewster's Angle [22] Slack [23] Derive Wave Eqn in Conductors	9.4.3		
*	3/16–20	Spring Break			
10	3/23 3/25 3/27	[24] Exam Review [25] Catch up [26] R&T in Conductors, B lags E			HW05
11	3/30 4/1 4/3	[27] Dispersion, Electrons on Springs [28] Jellium, Derive Cauchy Relation Spring Holiday	9.5.1 9.5.2		Report outline
12	4/6 4/8 4/10	[29] Dispersion [30] Retarded potentials, worked example [31] Intro to Gauges	10.1.1, 10.1.2 10.1.3		HW06
13	4/13 4/15 4/17	[32] Coulomb and Lorenz Gauge [33] Fields of a moving point charge [34] Jefimenko Eqns	10.2.1 10.3.2 10.2.2		

Wk	Date	Class Topic	Reading	Asst.	HW Asst.
14	4/20	[35] Electric Dipole Radiation	11.1.1		
	4/22	[36] Electric Dipole Radiation	11.1.2		
	4/24	[37] Larmor power formula			Reports
15	4/27	[38] Presentations			
	4/29	[39] Presentations			
	5/1	[40] Presentations			HW07
16	5/4	[41] Take Home Exam			
	5/6	[42] Presentations			
	5/7	[43] Presentations			