

Physics 321
Spring 2009

Date	Hour	Topic	Reading
Unit 1			
Apr 29	H1	Introduction – Newton's Laws of Motion and constant acceleration	1.2–1.5
Apr 29	H2	Integrating out differential equations - Trajectories and world lines	
May 1	H3	Linear and quadratic drag	2.1–2.4
May 1	H4	The Lorentz force	2.5–2.7
May 4	H5	Linear momentum and its conservation - Collisions	3.1–3.3
May 4	H6	Angular momentum and its conservation	3.4–3.5
May 6	H7	Energy conservation - Potential energy in one dimension	4.1–4.2
May 6	H8	Potential energy in three dimensions - Gradient, divergence, curl	4.3–4.4
May 8	H9	Curvilinear systems and central forces	4.7–4.8
May 8	H10	Multiparticle systems	4.9–4.10
May 11	H11	Simple harmonic oscillators	5.1–5.3
May 11	H12	Damped and driven oscillators	5.4–5.6
May 13	H13	Driven oscillators and the Fourier connection	None
May 13	H14	Review for Exam #1 (5/14–5/18 @ 3pm)	
Unit 2			
May 15	H15	The calculus of variations	6.1–6.4
May 15	H16	Lagrangian methods I	7.1–7.4
May 18	H17	Lagrangian methods II	7.5–7.7
May 18	H18	Lagrangian multipliers	7.10
May 20	H19	Various applications of Lagrangians	
May 20	H20	Hamiltonian methods I	13.1–13.3

May 22	H21	Hamiltonian methods II -	13.4-13.6
May 22	H22	The central force problem	8.,1-8.4
May 25	Memorial Day Holiday		
May 27	H23	Orbits	8.5-8.7
May 27	H24	Accelerating reference frames I	9.1, 9.3-9.4
May 29	H25	Accelerating reference frames II	9.5-9.7
May 29	H26	Accelerating reference frames III	9.8-9.10
Jun 1	H27	Exam #2 Review (6/2-6/5 @ 3pm)	
Unit 3			
Jun 1	H28	Center of mass and the inertia tensor	10.1-10.3
Jun 3	H29	Principal axes	10.4-10.5
Jun 3	H30	Euler's equations	10.6-10.8
Jun 5	H31	Euler's angles	10.9-10.10
Jun 5	H32	Lagrange's Equations	
Jun 8	H33	Coupled Oscillators I	11.1-11.2
Jun 8	H34	Coupled Oscillators II	11.3-11.4
Jun 10	H35	Chaotic oscillators I	12.1-12.4
Jun 10	H36	Chaotic oscillators II	12.5 & 12.7
Jun 12	H37	Collisions in three dimensions	14.1,2
Jun 12	H38	Scattering cross sections	14.4,7,8 - to Eq. 14.55
Jun 15	H39	Examples	
Jun 15	H40	Final review	
Jun 18	Final Exam: Thursday, June 18, 8:00-10:50 a.m. in the classroom		