

PHYS 1303 - sec 002 SYLLABUS

S. Dalley

Introductory Mechanics

Fall 2015

Text: Fundamentals Of Physics, by Halliday, Resnick, Walker, Vol1, 10th edition

Objectives: Upon successful completion of this course, students will be able to:

- 1) demonstrate basic facility with the methods and approaches of scientific inquiry and problem-solving
- 2) explain how the concepts and findings of physics shape our world
- 3) develop quantitative models as related to the course subject matter
- 4) apply symbolic systems of representation
- 5) formulate structured and logical arguments

Date	Topic	Reading Chapters	Quiz	Homework Chap.Prob#
			Due dates	
Mo 8/24	Introduction - Course overview			
We 8/26	Measurement	1.1 - 1.3	1	
Fr 8/28	Straight Line Motion - definitions	2.1 - 2.3	2	
Mo 8/31	Straight Line Motion - constant acceleration	2.4	3	A 1.3,1.12,2.2,2.18
We 9/2	Straight Line Motion - more examples	2.5 - 2.6	4	
Fr 9/4	TEST A			
Mo 9/7	Labor Day - No Class			
We 9/9	Vectors - components and addition	3.1 - 3.2	5	B 2.25,2.28,2.44,2.46
Fr 9/11	Motion in Two and Three Dimensions - definitions	4.1 - 4.3	6	
Mo 9/14	TEST B			
We 9/16	Motion in Two and Three Dimensions - projectiles	4.4	7	C 3.12,3.16,4.3,4.11
Fr 9/18	Motion in Two and Three Dimensions - more e.g.	4.4 - 4.7	8	
Mo 9/21	TEST C			
We 9/23	Force and Motion I - Newton's 1st & 2nd laws	5.1	9	D 4.22,4.28,4.58,4.76
Fr 9/25	Force and Motion I - Force types, 3rd law	5.2 - 5.3	10	
Mo 9/28	TEST D			
We 9/30	Force and Motion II - Resistive force	6.1 - 6.2	11	E 5.14,5.20,5.71,5.34
Fr 10/2	Force and Motion II - Uniform Circular motion	3.3, 6.3	12	
Mo 10/5	TEST E			
We 10/7	Kinetic Energy & Work	7.1 - 7.4	13	F 6.13,6.36,6.49,6.57
Fr 10/9	Variable Force, Power	7.5 - 7.6	14	
Mo 10/12	Fall Break - No Class			

We 10/14	Potential Energy	8.1	15	G	7.11,7.20,7.39,7.46
Fr 10/16	Conservation of Mechanical Energy	8.2 - 8.3	16		
Mo 10/19	TEST FG				
We 10/21	Linear Momentum	9.3 - 9.5	18	H	8.04,8.107,8.9,8.19
Fr 10/23	Collisions!	9.6 - 9.8	19		
Mo 10/26	TEST H				
We 10/28	Rotation - Angular Variables	10.1 - 10.3	20	I	9.25,9.40,9.49,9.74
Fr 10/30	Rotation - Rotational Inertia & Energy	10.4 -10.5	21		
Mo 11/2	TEST I				
We 11/4	Rotation - Torque	3.3,10.6-10.7,11.4	22	J	10.2,10.11,10.22,10.41
Fr 11/6*	Rotation - Angular Momentum	11.5 - 11.8	23		
Mo 11/9	TEST J				
We 11/11	Center of Mass	9.1 - 9.2	17	K	10.48,10.53,11.50,11.35
Fr 11/13	Equilibrium	12.1 - 12.2	24		
Mo 11/16	TEST K				
We 11/18	Gravitation - Newton's Force Law	13.1 - 13.4	25	L	9.2,9.12, 12.7,12.14
Fr 11/20	Gravitation - Potential, Orbits, Dark Matter	13.5 - 13.7	26		
Mo 11/23	TEST L				
We 11/25	<i>Thanksgiving - No Classes</i>				
Fr 11/27					
Mo 11/30	Oscillations – Simple Harmonic Motion	15.1 - 15.3	29	M	13.21,13.6,13.36,13.54
We 12/2	Oscillations – Circular, Damped, Forced	15.4 - 15.6	30		
Fr 12/4	TEST M				
Mo 12/7	Review			N	15.11,15.33,15.42,15.58
We 12/16	FINAL EXAM 11:30 am - 2:30 pm	<i>All of above</i>			

* Drop

Answers to odd-numbered problems are at the back of the textbook. Answers to even numbered problems (SI units unless stated otherwise): 1.12 3.1, 2.2 a) 1.74 b) 2.14, 2.18 (a) 54 (b) 18 (c) -12 (d) 64 (e) 4 (f) 24 (g) 2 (h) -24 (i) 18, 2.28 (a) 5.0 (b) 61.5, 2.44 (a) 3.70 (b) 1.74 (c) 0.154, 2.46 (a) 183, 3.12 (a) 81 km (b) 40° North of East, 3.16 (a) (8 i + 2 j) (b) 8.2 (c) 14° (d) (2 i – 6 j) (e) 6.3 (f) -72°, 4.22 (a) 0.495 (b) 3.07, 4.28 (a) 51.8 (b) 27.4 (c) 67.5, 4.58 (a) 0.94 (b) 19 (c) 2.4×10^3 (d) 50 ms, 4.76 (a) 185 km/h (b) 22.3° south of west, 5.14 (a) 2.0, 5.20 6.8×10^3 , 5.34 (a) 566 (b) 1.13×10^3 , 6.36 3.75, 7.20 45, 7.46 2.7×10^5 , 8.04 explain each answer! 9.2 (a) 1.1 (b) 1.3, 9.40 4.4×10^3 km/h, 9.100 (a) 41.0 (b) 4.75 (c) explain! 10.2 (a) 0.105 (b) 1.75×10^{-3} (c) 1.45×10^{-4} , 10.22 (a) 3.0 (b) 30 (c) 6.0 (d) 90, 10.48 (a) 8.4 (b) 17 (c) 0, 11.50 5×10^2 rev, 12.14 0.702, 13.6 1.18×10^{-14} (i + j), 13.36 (2) 2.2×10^7 (b) 6.9×10^7 , 13.54 $9.3 M_\odot$, 15.42 (a) 0.499 (b) 9.40×10^{-4} , 15.58 0.39.