PHYS 1307 - 001 SYLLABUS

General Physics I

S. Dalley

Spring 2018

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

Quiz every Tuesday in class, on topics covered in prior week unless otherwise stated.

Survey due 10 am every class day

Date	Class Topic	Pre-class Reading	Suggested Quiz Practice Problems	Objectives
Tue 1/23	**Measurement**	**1.1-2**	1.3, 1.12,	Understand and use dimensions, units, and significant figures
Thu 1/ 25	**Straight Line Motion I**	**2.1-2**	2.2, 2.15	Understand and use distance, displacement, velocity, speed in one dimension
Tue 1/30	**Straight Line Motion II**	**2.3-4**	2.18, 2.19, 2.25,	Understand acceleration in one dimension and apply to constant acceleration
Thu 2/1	**Straight Line Motion III**	**2.5-6**	2.37, 2.44, 2.53	Interpret kinematics graphically and apply to free fall
Tue 2/6	**Vectors**	**3.1-2**	4.9, 4.11,	Understand vectors conceptually, scalar components, apply vector addition
Thu 2/8	**Motion in 2D & 3D**	**4.1-4**	4.15, 4.22, 4.32	Understand and use vector kinematics in two and three dimensions
Tue 2/13	**Force and Motion I**	**5.1-2**	(5.1), (5.6), 5.7, 5.16,	Understand Newton's 3 laws, apply to gravity, tension & normal forces in 1D
Thu 2/15	**Force and Motion II**	**5.3**	(5.17), (5.20), 5.38, 5.57	Apply Newton's laws with more than one dimension and/or body
Tue 2/20	**Force and Motion III**	**6.1-2**	6.13, (6.15), (6.36), 6.40,	Apply Newton's laws to examples with resistive force
Thu 2/22	**Force and Motion IV**	**[4.5] 6.3**	6.43,6.49, (6.52), (6.57)	Apply Newton's laws to examples with circular motion
Tue 2/27	**Kinetic Energy & Work I**	**7.1-3 [3.3]**	(7.8), 7.11, (7.17), 7.20,	Apply kinetic energy and work to constant forces
Thu 3/1	**Kinetic Energy & Work II**	**7.4-6**	(7.30),7.39, (7.44), 7.46,	Apply kinetic energy and work to non-constant forces, and power
Tue 3/6	**Potential and Conserved Energy I**	**8.1-3**	(8.01), 8.03, (8.24),8.27,	Understand potential energy and apply conservation of mechanical energy
Thu 3/8	**Potential and Conserved Energy II**	**8.4-5**	8.42, 8.49, (8.122)	Analyze systems subject to external and non-conservative forces
			SPRING BREAK	
Tue 3/20			**MID-TERM EXAM - all prior topics**	
Thu 3/22	**Linear Momentum I**	**9.1-3**	9.2,9.6,9.9,9.17	Understand CoM, Newton's 2nd law, linear momentum for motion of systems
Tue 3/27	**Linear Momentum II** – no quiz	**9.4-8**	9.34, 9.43,9.60,,9.74	Apply impulse and conservation of linear momentum to collisions
Thu 3/29	**Oscillations I**	**15.1-2**	15.9, 15.11,15.30,15.33,	Apply mechanics to Simple Harmonic Motion
Tue 4/3	**Oscillations II** – momentum quiz	**15.4-6**	15.58, 15.61	Understand concepts of damped and forced oscillations
Thu 4/5	**Transverse Waves**	**16.1-3**	16.2, 16.23	Understand concepts of transverse wave displacement, speed, and energy
Tue 4/10*	**Sound Waves I** – oscillations quiz	**17.1-3**	17.7, 17.9, 17.11, 17.16	Understand concepts of sound wave displacement, speed, and interference
Thu 4/12	**Sound Waves II**	**17.4,7**	17.29,17.36, 17.55,17.61	Apply sound waves concepts to intensity and to frequency

Tue 4/17	**Fluids I**	**14.1-[3]-5**	14.3, 14.8, 14.28, 14.40	Understand pressure effects of ideal fluids at rest
Thu 4/19	**Fluids II**	**14.6-7**	14.52, 14.59, 14.76	Understand and apply equations of Bernoulli and Continuity to moving ideal fluids
Tue 4/24	**Rotational Motion I**	**10.1-3 [3.3]**	10.13, 10.22,	Understand angular displacement, velocity, acceleration about a fixed axis
Thu 4/26	**Rotational Motion II**	**10.4-(5)-7**	10.48,10.53,	Extend and apply laws of mechanics to rotation (rotational inertia, torque)
Tue 5/1	**Rotational Motion III**	**11.4-8**	11.29,11.43	Understand and apply angular momentum
Thu 5/3	**Equilibrium**	**12.1-2**	12.9,12.13	Apply mechanics to systems in equilibrium (balance)
Fr 5/11	**FINAL EXAM** (1/26 - 5/4 material) **11:30 am - 2:30 pm**			

*Drop date
is Wed 4/11

Answers to odd-numbered problems in the textbook. Answers to even-numbered suggested 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, 2.44 (a) 3.70 (b) 1.74 (c) 0.154, 4.22 (a) 0.495 (b) 3.07, 4.40 (a) 24.95 (b) 25.02, 5.16 (a) 0.260 , 5.38 (a) 68N (b) 28N (c) -12N , 6.40 (a) 66.0 (b) -2.20 x 10^2 dC, 7.20 45, 7.46 2.7 x 10^5 , 8.42 (a) 5.6 x 10^2 (b) 5.6 x 10^2 , 9.2 (a) 1.1 (b) 1.3, 9.6 (a) 0.20 (b) 0.20 (c) 0.16, 9.34 (a) 4.50 x 10^{-3} (b) 0.529, 9.60 (a) 1.9 (b) right (c) elastic, 9.74 -500J, 10.22 (a) 3.0 (b) 30 (c) 6.0 (d) 90, 10.48 (a) 8.4 (b) 17 (c) 0, 11.56 6.46, 14.8 1.4 x 10^5, 14.28 (b) 103, 14.40 6.5 mm, 14.52 4, 14.76 (a) 5% (b) 41%, 15.30 (a) 200 (b) 1.39 (c) 1.91, 15.58 0.39, 17.16 4.12, 17.36 0.67

Disability Accommodations: Students needing academic accommodations for a disability must first register with Disability Accommodations & Success Strategies (DASS). Students can call 214-768-1470 or visit http://www.smu.edu/Provost/ALEC/DASS to begin the process. Once registered, students should then schedule an appointment with the professor as early in the semester as possible, present a DASS Accommodation Letter, and make appropriate arrangements. Please note that accommodations are not retroactive and require advance notice to implement.

Religious Observance: Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester, and should discuss with them, in advance, acceptable ways of making up any work missed because of the absence. (See University Policy No. 1.9.)

Excused Absences for University Extracurricular Activities: Students participating in an officially sanctioned, scheduled University extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work. (University Undergraduate Catalogue)