PHYS 1307 - 001 SYLLABUS

General Physics I

S. Dalley

Spring 2017

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

Quiz every Tuesday in class

Survey due 10 am every class day

Course Objectives: Students will be able to:

1) demonstrate basic facility with the methods 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	Class	Pre-class Prep	Survey 10:00am	Suggested Quiz-Prep Chapter Problems	Objectives
Tu 1/24	**Measurement**	**1.1-2**		1.3, 1.12,	Understand and use dimensions, units, and significant figures
Th 1/ 26	**Straight Line Motion I**	**2.1-2**	2	2.2, 2.15	Understand and use distance, displacement, velocity, speed in one dimension
Tu 1/31	**Straight Line Motion II**	**2.3-4**	3	2.18, 2.19, 2.25,	Understand acceleration in one dimension and apply to constant acceleration
Th 2/2	**Straight Line Motion III**	**2.5-6**	4	2.37, 2.44, 2.53	Interpret kinematics graphically and apply to free fall
Tu 2/7	**Vectors**	**3.1-2**	5	4.9, 4.11,	Understand vectors conceptually, scalar components, apply vector addition
Th 2/9	**Motion in 2D & 3D**	**4.1-4**	6	4.15, 4.22, 4.32	Understand and use vector kinematics in two and three dimensions
Tu 2/14	**Force and Motion I**	**5.1-2**	7	(5.1), (5.6), 5.7, 5.16,	Understand Newton's 3 laws, apply to gravity, tension & normal forces in 1D
Th 2/16	**Force and Motion II**	**5.3**	8	(5.17), (5.20), 5.38, 5.57	Apply Newton's laws with more than one dimension and/or body
Tu 2/21	**Force and Motion III**	**6.1-2**	9	6.13, (6.15), (6.36), 6.40,	Apply Newton's laws to examples with resistive force
Th 2/23	**Force and Motion IV**	**[4.5] 6.3**	10	6.43,6.49, (6.52), (6.57)	Apply Newton's laws to examples with circular motion
Tu 2/28	**Kinetic Energy & Work I**	**7.1-3 [3.3]**	11	(7.8), 7.11, (7.17), 7.20,	Apply kinetic energy and work to constant forces
Th 3/2	**Kinetic Energy & Work II**	**7.4-6**	12	(7.30),7.39, (7.44), 7.46,	Apply kinetic energy and work to non-constant forces, and power
Tu 3/7	**Potential and Conserved Energy I**	**8.1-3**	13	(8.01), 8.03, (8.24),8.27,	Understand potential energy and apply conservation of mechanical energy
Th 3/9	**Potential and Conserved Energy II**	**8.4-5**	14	8.42, 8.49, (8.122)	Analyze systems subject to external and non-conservative forces
SPRING BREAK					
Tu 3/21	**MID-TERM EXAM** (1/26 - 3/2 material)				
Th 3/23	**Linear Momentum I**	**9.3-4**	15	(9.3),9.34, (9.38), 9.43	Understand linear momentum and impulse, apply to motion of systems
Tu 3/28	**Linear Momentum II** (3/7-3/9 Quiz)	**9.5-8**	16	9.60, (9.73),9.74, (9.98)	Apply conservation of linear momentum to collisions
Th 3/30	**Rotational Motion I**	**10.1-3 [3.3]**	17	10.13, 10.22,	Understand angular displacement, velocity, acceleration about a fixed axis
Tu 4/4	**Rotational Motion II** (3/23 - 3/28 Quiz)	**10.4-(5)-7**	18	10.48,10.53,	Extend and apply laws of mechanics to rotation (rotational inertia, torque)
Th 4/6	**Rotational Motion III**	**11.4-8**	19	11.29,11.43, 11.56	Understand and apply angular momentum
Tu 4/11*	**Center of Mass**	**9.1-2**	20	9.2,9.6,9.9,9.17	Understand CoM and Newton's 2nd law for systems
Th 4/13	**Equilibrium**	**12.1-2**	21	12.9,12.13, 12.27	Apply mechanics to systems in equilibrium (balance)

Tu 4/18	**Fluids I**	**14.1-[3]-5**	22	14.3, 14.8, 14.28, 14.40	Understand pressure effects of ideal fluids at rest
Th 4/20	**Fluids II**	**14.6-7**	23	14.52, 14.59, 14.76	Understand and apply equations of Bernoulli and Continuity to moving ideal fluids
Tu 4/25	**Oscillations I**	**15.1-2**	24	15.9, 15.11,15.30,15.33,	Apply mechanics to Simple Harmonic Motion
Th 4/27	**Oscillations II**	**15.4-6**	25	15.58, 15.61	Understand concepts of damped and forced oscillations
Tu 5/2	**Sound Waves I**	**17.1-3**	26	17.7, 17.9, 17.11, 17.16	Understand concepts of sound wave displacement, speed, and interference
Th 5/4	**Sound Waves II**	**17.4,7**	27	17.33,17.36, 17.55,17.61	Apply sound waves concepts to intensity and to Doppler Effect
Fr 5/12	**FINAL EXAM** (1/26 - 5/4 material) **11:30 am - 2:30 pm**				

*Drop date

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)