

**TABLE 1**  
**PHYSICS 102a SYLLABUS FOR THE FALL TERM, 2017-2018**

Approx.. hours +-.5 hrs	Chapter	Topics Covered (Text: College Physics, Serway and Vuille Hybrid version 11 <sup>th</sup> edition)	Sections or Pages of Text Omitted 11 <sup>th</sup> .
1	1	<b>INTRODUCTION.</b> Standards of length, time and mass, dimensions of physical quantities, significant figures, coordinate systems.	-
4	2	<b>MOTION IN ONE DIMENSION.</b> Displacement, velocity, acceleration, motion with constant acceleration, free fall.	-
4	3	<b>TWO-DIMENSIONAL MOTION.</b> Vectors and scalars, properties/components of a vector (chapter 1), projectile motion.	3.3
4	4	<b>THE LAWS OF MOTION.</b> Force, Newton's laws of motion, mass and weight, applications of Newton's laws, friction.	-
3.5	5	<b>WORK AND ENERGY.</b> Work, kinetic and potential energy, conservative and non-conservative forces, work-energy theorem, conservation of energy, power.	5.8
3	6	<b>MOMENTUM AND COLLISIONS.</b> Linear momentum and impulse, conservation of momentum, elastic (definition only) and inelastic collisions, glancing collisions.	6.5, page 173 (elastic collision equations)
3.5	7	<b>ROTATIONAL MOTION AND GRAVITATION</b> Angular velocity, centripetal acceleration and force, Newton's law of gravitation. (Omit rotational motion under constant angular acceleration, consequences of Newton's law, Kepler's Laws)	7.2 7.5.2
3	8	<b>ROTATIONAL EQUILIBRIUM AND DYNAMICS.</b> Torque and the second condition of equilibrium, center of gravity, examples of objects in equilibrium. (Omit Newton's laws for rotation, rotational kinetic energy, angular momentum.)	8.4-8.6
3	9	<b>SOLIDS AND FLUIDS.</b> States of matter, elastic properties of solids, density and pressure, variation of pressure with depth, buoyant force and Archimedes' principle, fluids in motion(qualitative), surface tension, capillarity	9.8.3 9.8.4 9.8.5 9.10
1	10	<b>THERMAL PHYSICS.</b> Thermometer and temperature scales, expansion of solids and liquids. (omit zeroth law, ideal gas, kinetic theory of gases.)	10.4-10.5
3	11	<b>HEAT.</b> Mechanical equivalent of heat, specific heat, calorimetry, latent heat, conduction, convection, and radiation (qualitative only). Global warming, qualitative	