















Class	Major Topics	Textbook Reference
1 Mon. Sept. 11	<ul style="list-style-type: none"> <li>• Introduction to PHY138: the structure of the course</li> <li>• Studying Physics</li> <li>• Doing well at University</li> </ul>	None
2 Wed. Sept. 13	<ul style="list-style-type: none"> <li>• Motion Diagrams <ul style="list-style-type: none"> <li>◦ Example: projectile motion </li> </ul> </li> <li>• Position, velocity, acceleration </li> <li>• Vectors </li> <li>• Problem solving</li> <li>• Units</li> <li>• Significant figures </li> </ul>	Chapter 1 - <b>Concepts of Motion</b>
3 Mon. Sept. 18	<ul style="list-style-type: none"> <li>• More about displacement, velocity, speed and acceleration</li> <li>• Using derivatives</li> <li>•  Introducing the integral sign</li> <li>• Free fall</li> <li>• Motion on an inclined plane</li> </ul>	Chapter 2 - <b>Kinematics: The Mathematics of Motion</b> Omit subsection of §2.4: <i>A Little More Calculus: Integrals</i>
4 Wed. Sept. 20	<ul style="list-style-type: none"> <li>• Vectors and scalars</li> <li>• Coordinate systems</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Newton's 1st and 2nd Laws</li> <li>• Inertial reference frames</li> <li>• Free body diagrams</li> </ul>	Chapter 3 - <b>Vectors and Coordinate Systems</b>  Chapter 4 - <b>Force and Motion</b>
5 Mon. Sept. 25	<ul style="list-style-type: none"> <li>• Equilibrium</li> <li>• Using Newton's 2nd Law</li> <li>• Mass and weight</li> </ul>	Chapter 5 - <b>Dynamics I: Motion Along a Line</b> Omit §5.4 - Friction Omit §5.5 - Drag
6 Wed. Sept. 27	<ul style="list-style-type: none"> <li>• Kinematics in Two Dimensions</li> <li>• Dynamics in Two Dimensions</li> <li>• Projectile motion</li> <li>•  <b>Data and analysis of jumping frogs.</b></li> </ul>	Chapter 6 - <b>Dynamics II: Motion in a Plane</b> Omit §6.4 - Relative motion

7 Mon. Oct. 2	<ul style="list-style-type: none"> <li>• Uniform circular motion</li> <li>• Circular orbits</li> </ul>	Chapter 7 - <b>Dynamics III: Motion in a Circle</b> §7.1 - §7.4
8 Wed. Oct. 4	<ul style="list-style-type: none"> <li>• Fictitious forces</li> <li>• Nonuniform circular motion</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Action/reaction pairs</li> <li>• Ropes and pulleys</li> <li>•  <b>Ballistocardiogram</b></li> </ul>	§7.5 - §7.6  Chapter 8 - <b>Newton's Third Law</b>
9 Wed. Oct, 11	<ul style="list-style-type: none"> <li>• Impulse</li> <li>•  <b>Damage caused to people in collisions</b></li> <li>•  <b>Physics of a tennis serve</b></li> <li>• Conservation of momentum</li> <li>• Inelastic collisions</li> <li>• Angular momentum</li> </ul>	Chapter 9 - <b>Impulse and Momentum</b>
10 Mon. Oct. 16	<ul style="list-style-type: none"> <li>• Kinetic energy</li> <li>• Gravitational potential energy</li> <li>•  The gravitational field </li> <li>• Hooke's Law for springs</li> <li>• Elastic collisions</li> <li>• Energy diagrams</li> </ul>	Chapter 10 - <b>Energy</b> §10.1 - §10.7 Omit subsection of §10.6: <i>Using Reference Frames</i>
11 Wed. Oct. 18	<ul style="list-style-type: none"> <li>• Work and kinetic energy</li> <li>•  <b>More about jumping frogs</b></li> <li>• Conservative and non-conservative forces</li> <li>• Thermal energy</li> <li>• Conservation of energy</li> <li>• Power</li> <li>•  <b>Basal metabolic rate</b></li> </ul>	Chapter 11 - <b>Work</b> §11.1 - §11.9

<p>12 Mon. Oct. 23</p>	<ul style="list-style-type: none"> <li>• Rotation about the center of mass</li> <li>• Torque</li> <li>•  <b><i>Forces on the hip and femur</i></b></li> </ul>	<p>Chapter 13 - <b>Rotation of a Rigid Body</b> §13.1 - §13.3</p>
<p>13 Wed. Oct. 25</p>	<ul style="list-style-type: none"> <li>• Moment of inertia</li> <li>• Conservation of angular momentum</li> <li>• Rotational energy</li> <li>• Angular momentum of a rigid body</li> </ul>	<p>§13.4 - §13.7, §13,10 Omit §13.8 - <i>Rolling Motion</i> Include the <i>Angular Velocity Vector</i> subsection of §13.9; omit the rest of this section</p>
<p>14 Mon. Oct. 30</p>	<ul style="list-style-type: none"> <li>• Review for the test</li> </ul>	<p>All of the above.</p>
<p>15 Wed. Nov. 1</p>	<ul style="list-style-type: none"> <li>• Error analysis: a laboratory topic</li> </ul>	<p>Nothing from the textbook, but we will discuss <i>Significant Figures</i> from Class 2 in a different way.</p>

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