








| Class                 | Major Topics  | Textbook Reference  |
|-----------------------|---|---|
| 1<br>Mon. Sept.<br>12 | <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<br>Wed. Sept.<br>14 | <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<br>Mon. Sept.<br>19 | <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><br>Omit subsection of §2.4: <i>A Little More Calculus: Integrals</i> |
| 4<br>Wed. Sept.<br>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><br><br>Chapter 4 - <b>Force and Motion</b>                                  |
| 5<br>Mon. Sept.<br>26 | <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><br>Omit §5.4 - Friction<br>Omit §5.5 - Drag                                |

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| <p>6<br/>Wed. Sept.<br/>28</p> | <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>   | <p>Chapter 6 - <b>Dynamics II: Motion in a Plane</b><br/>Omit §6.4 - Relative motion</p>                                       |
| <p>7<br/>Mon. Oct. 3</p>       | <ul style="list-style-type: none"> <li>• Uniform circular motion</li> <li>• Circular orbits</li> </ul>  | <p>Chapter 7 - <b>Dynamics III: Motion in a Circle</b><br/>§7.1 - §7.4</p>   |
| <p>8<br/>Wed. Oct. 5</p>       | <ul style="list-style-type: none"> <li>• Fictitious forces</li> <li>• Nonuniform circular motion</li> <hr/> <li>• Action/reaction pairs</li> <li>• Ropes and pulleys</li> <li>•  <b>Ballistocardiogram</b></li> </ul>  | <p>§7.5 - §7.6</p> <hr/> <p>Chapter 8 - <b>Newton's Third Law</b></p>  |
| <p>9<br/>Wed. Oct,<br/>12</p>  | <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> | <p>Chapter 9 - <b>Impulse and Momentum</b></p>   |
| <p>10<br/>Mon. Oct.<br/>17</p> | <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>                     | <p>Chapter 10 - <b>Energy</b><br/>§10.1 - §10.7<br/><b>NEW</b> Omit subsection of §10.6:<br/><i>Using Reference Frames</i></p> |

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| <p>11<br/>Wed. Oct.<br/>19</p> | <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> | <p>Chapter 11 - <b>Work</b><br/>§11.1 - §11.9</p>   |
| <p>12<br/>Mon. Oct.<br/>24</p> | <ul style="list-style-type: none"> <li>• Rotation about the center of mass</li> <li>• Torque</li> <li>•  <b>Forces on the hip and femur</b></li> </ul>  | <p>Chapter 13 - <b>Rotation of a Rigid Body</b><br/>§13.1 - §13.3</p>   |
| <p>13<br/>Wed. Oct.<br/>26</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<br/><b>NEW</b> Omit §13.8 - <i>Rolling Motion</i><br/><b>NEW</b> Include the <i>Angular Velocity Vector</i> subsection of §13.9; omit the rest of this section</p> |
| <p>14<br/>Mon. Oct.<br/>31</p> | <ul style="list-style-type: none"> <li>• Review for the test</li> </ul>  | <p>All of the above.</p>  |
| <p>15<br/>Wed. Nov.<br/>2</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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