Portland State University  
Department of Physics  

Spring 2013  
Physics 424: Classical Mechanics  

(CRN 64293)  

Instructor: Aslam Khalil, Professor  

Time and Place: MW 12:00-13:50 in BHB 218  
Office Hours: MW 14:00-15:00 if needed, STRC Rm 410.  
Contact Information: Call anytime: (503) 725-8396.  
E-mail: khalilm@pdx.edu (Preferred means of contact).  
Use D2L for discussion and help.  

<table>
<thead>
<tr>
<th>SCHEDULE</th>
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<th>Lect</th>
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<tbody>
<tr>
<td>April</td>
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<tr>
<td>M 1</td>
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<td>Scope, Context. Basic Principles and Newton's Laws</td>
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<tr>
<td>W 3</td>
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<td>Newton's Laws, Projectiles.</td>
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<td>M 8</td>
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<td>2</td>
<td>3</td>
<td>Air Resistance</td>
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<td>W 10</td>
<td>4</td>
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<td>Conservation on Momentum</td>
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<tr>
<td>M 15</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>Rocket Science</td>
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<tr>
<td>W 17</td>
<td>6</td>
<td>4</td>
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<td>Conservation of Energy and the 1-D Problem, Central Forces</td>
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<tr>
<td>M 22</td>
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<td>&lt;&lt;Problem Set 1 Ch 1-3&gt;&gt;</td>
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<td>W 24</td>
<td>5</td>
<td>8</td>
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<td>Oscillations: Simple Harmonic Motion, Anharmonic and Anisotropic oscillators</td>
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<td>M 29</td>
<td>5</td>
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<td>&lt;&lt;Problem Set 2 Due Ch 4,5&gt;&gt;</td>
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<td>May</td>
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<td>W 1</td>
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<td>Damped Oscillations, Resonance</td>
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<td>M 6</td>
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<td>&lt;&lt;Mid-term exam&gt;&gt;</td>
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<td>W 8</td>
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<td>Calculus of Variations, First Integrals and Applications</td>
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<td>M 13</td>
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<td>14</td>
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<td>Lagrange Formulation, Conservation Laws, Applications</td>
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<td>M 20</td>
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<td>Motion of Two Interacting Bodies, Kepler Orbits</td>
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<td>W 22</td>
<td>9</td>
<td>17</td>
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<td>Mechanics in Non-Inertial Frames</td>
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<td>M 27</td>
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<td>18</td>
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<td>W 29</td>
<td>19</td>
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<td>Tides and Applications</td>
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<tr>
<td>M 3</td>
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<td>21</td>
<td>Rotational Motion of Rigid Bodies</td>
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<td>&lt;&lt;Problem Set 4: Ch 8-10&gt;&gt;</td>
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<td>Th 13</td>
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<td>&lt;&lt;Final Exam&gt;&gt; 12:30 - 14:20</td>
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See Notes on the Back
### Portland State University

#### Department of Physics

#### Physics 424: Classical Mechanics

#### Spring 2013

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**Instructor:** Aslam Khalil, Professor

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<thead>
<tr>
<th>Grading</th>
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<tbody>
<tr>
<td>85-100%</td>
<td>A</td>
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<tr>
<td>75-84%</td>
<td>B</td>
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<tr>
<td>65-74%</td>
<td>C</td>
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<td>50-64%</td>
<td>D</td>
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<td>&lt; 50%</td>
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**Distribution**

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<td>Exams</td>
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<tr>
<td>Problem Sets</td>
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<tr>
<td>Class participation</td>
<td>5%</td>
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<tr>
<td><strong>TOTAL</strong></td>
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* Lower Limit of grade range is a -, upper limit is a +. Eg. 75=B-, 84=B+

**Notes:**


* Exams will be in class and closed book. You are allowed on 8.5" x 11" sheet Work of paper with your notes (both sides), scratch paper and calculator.
* No late work will be accepted. Exceptions for dire circumstances only.
* This schedule is subject to change
* 2 points lost from "class participation" per class missed.