## Class 1: Introduction to Class; Discussion of Galileo, Discussion of Scientific Method

## Night 1 Homework: Aristotle and Galileo

1. Learn about Aristotle and Galileo by:
   1. <http://blogs.bu.edu/ggarber/bua-py-25/galileo-aristotle-and-inertia/>
   2. YouTube Video <http://youtu.be/nWpEXi3Xb4M>
   3. Textbook readings: Chapter 1 on Scientific Method (pp 7-10)

Chapter 2 pp 18-23 (on Aristotle on Motion, Galileo on Leaning Tower, Galileo on Inclined Planes)

1. Write InterLACE HW questions on Aristotle, Galileo, and Mass http://interlace.k12engineering.com/interlace/
2. Web Assign Questions on Aristotle vs Galileo

http://www.webassign.net/

## Class 2: Discussion of inertia, and mass vs weight

## Night 2: Newton’s First Law, Net Force and Statics

1. Learn about Newton’s First Law, Net Force and Statics by:
   1. <http://blogs.bu.edu/ggarber/bua-py-25/newtons-first-law/>
   2. OR YouTube Video <http://youtu.be/i05XeGuA9go>
   3. OR Read textbook Chapter 2: pp 23-29 (on Newton’s 1st Law, Net Force, Equilibrium Rule, Support Force, Equilibrium of moving things), Chapter 4: pp 54-5 (mass and Weight)
2. InterLACE Questions on Inertia and Mass
3. WebAssign Questions on Inertia and Net Force

## Class 3: Statics and Forces in Equilibrium

## Night 3: Statics and Introduction to Motion.

1. Learn about motion and velocity
   1. <http://blogs.bu.edu/ggarber/bua-py-25/introduction-to-motion/>
   2. OR YouTube Video <http://youtu.be/uiWAdKVi0Z8>
   3. OR Read Textbook Chapter 3 pp 36-38 (on Speed, Velocity), Appendix A pp. 665 (US Customary System, System International, Appendix B p 668 (first column only) AND Workbook p iv (How to use This Book), Chapter 1 pp 1-2 (Speed Velocity, NOT acceleration), Read Examp 1-3
2. Read about Methods for Measuring Velocity on Blog at http://blogs.bu.edu/ggarber/bua-py-25/introduction-to-motion/measuring-position-and-velocity/
3. InterLACE Questions on Statics
4. Web Assign Questions on Equilibrium
5. Learn about LEGO Mindstorm Robots and Programming in LabView: watch you tube video at https://sites.google.com/site/robtorok/lvlm-tutorials/1-your-first-program

## Class 4: Kinematics (Velocity calculations and measuring speed of a robot)

## Night 4: Motion and graphing

1. Learn about motion and graphing
   1. Read the Blog page <http://blogs.bu.edu/ggarber/bua-py-25/velocity-and-position-graphs/>
   2. OR YouTube Video <http://youtu.be/X-y3rnRj4gw>
   3. Or Read Textbook Appendix C pp 671-673 (Graphs, Cartesian, Area and Slope)
2. InterLACE Questions on Motion
3. Workbook Questions: Write the answers IN your workbook: Chapter 1 pp 5-6 Do Exercises 1-4
4. Update your lab notebook: Record a description of your experiment in your lab notebook. Describe what you do. If you programmed a computer describe your program. Include sketches. Include results and an analysis compared to other groups methods. If you were able to get any results, yet. You may print out photos from InterLACE and edit any types entries as needed.

## Class 5: Making graphs of objects moving at a constant speed

## Night 5: Graphing motion and acceleration

1. Learn about acceleration
   1. Read the Blog page <http://blogs.bu.edu/ggarber/bua-py-25/acceleration/>
   2. OR YouTube Video <http://youtu.be/wyqwwnkunxs>
   3. Or Read Textbook Chapter 3 pp 39-41 (acceleration, Galileo Inclined Plane), Appendix B pp 668-670 (Computing velocity and distance on inclined planes and when acceleration is constant) AND Read Workbook p 2 (Acceleration) and p 5 (Example 5)
2. InterLACE Questions on graphs of Constant V
3. Web Assign Questions on velocity
4. Update lab notebook

## Class 6: Accelerating Objects

## Night 6: Accelerating motion

1. Learn about Kinematic Equations and accelerating motion
   1. Read the Blog page
   2. OR YouTube Video
   3. Or Read Textbook Chapter 3 pp 41-45 (How fast, How far, How quickly How Fast Changes) AND Read Workbook Chapter 2 p 8-9 (Free Fall) and (Examples 6-9)
2. InterLACE Questions on acceleration
3. Workbook (do problems in the workbook) pp6-7 Exercises 5-8
4. Update lab notebook

## Class 7: Free Fall

## Night 7: Free fall and Inertia

1. Learn about Galileo and free fall and Newton’s 2nd Law

Read Textbook Chapter 4 pp 56-58 (Newton’s second law of motion, when acceleration is free fall), Chapter 9 pp 151-152 (Newtonian Synthesis, Universal Law of gravity) AND Workbook Chapter 7 p 97 and p101.

1. InterLACE Questions on Free Fall
2. Workbook p 10 Exercises 9-11
3. Web Assign Questions on Free Fall
4. Update lab notebook

## Class 8 and 9: Exploring Falling Objects

## Night 8: Lab Report Guidelines

1. Learn about writing a lab report on the Blog Page <http://blogs.bu.edu/ggarber/bua-py-25/introduction-to-physics/types-of-assignments/lab-report-guidelines/>
2. InterLACE Questions on Free Fall Problems
3. Workbook p 11-12 Exercises 12-14
4. Web Assign Questions on Free Fall Problems
5. Start thinking about lab report

## Night 9: Start lab report

1. Write an outline for the introduction
2. Find primary sources, start doing background research
3. Make graphs, analyze data

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| Class # | Gryffindor (B) | Hufflepuff (D): | Ravenclaw (E): | Slytherin (F): |
| 1 | Tues 9/4 | Tues 9/4 | Wed 9/5 | Tues 9/4 |
| 2 | Thurs 9/6 | Wed 9/5 | Thurs 9/6 | Wed 9/5 |
| 3 | Fri 9/7 | Thurs 9/6 | Fri 9/7 | Fri 9/7 |
| 4 | Mon 9/10 | Fri 9/7 | Mon 9/10 | Mon 9/10 |
| 5 | Tues 9/11 | Tues 9/11 | Wed 9/12 | Tues 9/11 |
| 6 | Thurs 9/13 | Wed 9/12 | Thurs 9/13 | Wed 9/12 |
| 7 | Fri 9/14 | Thurs 9/13 | Fri 9/14 | Fri 9/14 |
| 8 | Mon 9/17 | Fri 9/14 | Mon 9/17 | Mon 9/17 |
| 9 | Tues 9/18 | Tues 9/18 | Wed 9/19 | Tues 9/18 |