

## I. PERSONAL INFORMATION

TA: Ian Leifer

Affiliation: PhD Student in physics at GC CUNY

E-mail: ileifer@ccny.cuny.edu

Location: Groove School of Engineering, 1M25 or 1M2-4

## II. ABOUT LABS

1. To get Pass grade for the class, you need to get Pass for the lab. To do that you need to attend 7 labs, 5 workshops and submit 7 lab reports.
2. Work on every lab in groups of 2-3 people. We will change groups twice after 2nd and 4th labs.
3. Attendance during both lab and workshop sessions is mandatory, if you miss something, you need to make it up. Send me an email and I'll help you finding the way. Don't leave early until you showed me your results. You can leave at 3:50 even if you are not done, but you need to complete your labs to submit lab report with all results.
4. Lab grade is 10% of your final grade for the subject and things discussed during lab sessions will appear on your exams.
5. After every lab session you need to submit lab report. Deadline is 1 week after the lab completion at 2pm. **2:01pm is a late submission.** If you are late, you lose 50% of the points. If you are late for more than 1 week, you lose 100% of your points, but you still need to submit your report to pass the lab section.
6. Submit every lab report as a pdf file via email to me. I'm going to send out emails with your grades and comments. If you want more detailed comments, please send me an email and I'll try to answer in a timely manner.

### III. LAB REPORTS FORMAT

Your report should be written in the style of a research paper. Use the structure outlined below. Not using this structure can result in the loss of points.

#### A. Introduction - 1 point

Introduce reader to your report. What is the main topic of the lab? Why is it important?

*Example:*

In this lab we measure  $g$ .  $g$  is used when solving kinematics problems in an approximation of being on the surface of Earth...

#### B. Procedure - 2 points

Describe what you did. This should be enough to fully reproduce all the result you show in the data. Write it as if someone is going to repeat your experiment and use this as an instruction. 1 point - all steps are covered and 1 point - use the following structure.

*Example:*

Experiment 1. Measuring  $g$  by measuring time it takes for the pen to fall

- a. *I hold the pen at the height of 1m and I hold the stopwatch*
- b. *I let the pen go and push start button at the same time*
- c. *I push stop button when I hear the pen hits the ground*

#### C. Data/Calculations - 3 points

Present your results. Follow structure from the procedure

*Example:*

Experiment 1. Measuring  $g$  by measuring time it takes for pen to fall

$$h = \frac{gt^2}{2} - \text{kinematic equation}$$

$$g = \frac{2h}{t^2}$$

$$t = 0.54s, h = 1m$$

$$g = \frac{2*1[m]}{(0.54)^2[s^2]} = 6.9m/s^2$$

#### D. Questions - 2 points

1. Text of question 1

Answer to question 1

2. Text of question 2

Answer to question 2

#### E. Conclusion - 2 points

What is the main result of this experiment? Is it right or wrong? Why? How *experiment setup* can be improved? (Note: experiment setup, not your actions conducting the experiment). 1 point - Main result is identified. Clear reasons are given for it being right or wrong, 1 point - suggesting the way to improve the experiment (less vague than doing more repetitions or using more precise equipment).

*Example:*

We measured  $g = 6.9m/s^2$  and compared it with the table value of  $g = 9.8m/s^2$ . Difference is almost 30%. Big contributor to this error is the fact that we measured the short fall. It can be improved by setting up the experiment where longer fall is measured. For instance, we can set up an experiment, where one person drops something from the window and another person measures the time it takes for the object to fall standing outside.

#### IV. DOS AND DON'TS

1. Do: Use MS Word to write formulas.
2. Do: Have the structure in the report. Not having the structure can result in loss of points.
3. Do: Present all measurements, all calculations, all graphs and all tables that you did during the lab excluding interactive tasks that have to be completed.

4. Don't draw or write anything by hand on the report. Anything written by hand will not be graded.
5. Don't add the part of your results or the output from your computer to the end of the lab report. This will not be graded. Include results as a part of the chapter "Data".
6. Don't write report longer than 5 pages and shorter than 3 pages. This is a rule of thumb, you won't lose points for not following this one.