

WINTHROP UNIVERSITY Course Syllabus

Department of Chemistry, Physics, & Geology

Semester: Fall 2019

Course: PHYS 201L (001) - General Physics I Laboratory.

Credit hours: 0

Co-requisite: [PHYS 201](#)

Professor: Dr. Ponn Maheswaranathan ([Mahes](#)), Sims 213-B.

Meeting Time & Place: W 2-4:50 PM, Sims 205.

Office Hours: M&W 9:30-11AM or by appointment.

Phone: 323 4940, **E-mail:** mahesp@winthrop.edu.

Textbook: College Physics, by OpenStax, Free Online

Textbook, <https://openstax.org/details/college-physics>.

After the completion of the lab, you need to do a post-lab quiz, individually, on BB through the PHYS 201 page. This will carry 10% of the lab score. Completed Lab hand-out is due the following Tuesday before lecture, will carry another 10%, and the Write-up (data tables, graphs, and conclusion) through the PHYS 201L BB page, will carry 80% of the lab score.

Rules for the laboratory:

1. You must read the web-link and the relevant materials from the textbook before the lab period and be prepared for the laboratory.
2. You will work in a group of two or more. Both partners should actively take part in collecting the data and in the experimental process.
3. At the end of your lab work you need to return all the laboratory equipment to the appropriate places where you took them.
4. You need to handle the equipment carefully, giving special attention when warranted.
5. When you leave the laboratory, you need to make sure the laboratory table is clean and free of any materials.
6. Do not miss any laboratory. You will receive "0" for all missed laboratories.

Lab Schedule:

Lab #	Wednesday Lab	Experiment
1	Aug. 28	<u>Graphing with Excel</u>
2	Sept. 4	<u>Density</u>
3	Sept. 11	<u>Vectors</u>
4	Sept. 18	<u>Data Collection with a PC</u>
5	Sept. 25	<u>Friction</u>
6	Oct. 2	<u>Energy</u>
7	Oct. 9	<u>Ballistic Pendulum</u>
8	Oct. 16	<u>Archimedes' Principle</u>
9	Oct. 23	<u>Torque</u>
10	Oct. 30	<u>Rotational Motion</u>
11	Nov. 6	<u>Hooke's Law and SHM</u>
12	Nov. 13	<u>Vibrating String</u>
13	Nov. 20	<u>Speed of sound in air</u>

At the completion of each lab every student is required to turn in a lab write-up. Students may work with their partner(s) to complete most of the write-up. This means sharing ideas not paragraphs. However, the conclusion section must be completed independently! Students are encouraged to be creative with their conclusions and explain whether or not their results are accurate. If the results are not close to the accepted values student are expected to give reasons for any discrepancies. The conclusion section is the part of the lab which is most important to check for student comprehension of the topic. Even though you do the lab and collect data as a group, you should write your own conclusion.

How to write a conclusion?

* Conclusion is the most important part of your report. It is a brief summary-paragraph, about half a page. You must write your own conclusion, after completing the data collection and analysis. It must be written as the last piece and attached as the last piece, after data tables and graphs.

* Conclusion should state things that are unique for your investigation which can be accomplished by including values of the experimentally determined physical quantities. Just remember that you cannot write your conclusion without completing your experiments or investigations. General statements like "I have determined the densities of given solids" and "Human Error" are not acceptable.

Division of the conclusion point (1) are listed for 10 point total lab report score:

Start your conclusion by re-stating the purpose with appropriate changes (0.2 pt). Then you need to briefly state (don't repeat procedure) how you conducted the experiment and collected the data (0.2 pt). Continue this with summarizing your results (make it unique by listing your experimental values) (0.2 pt), referring to the data tables and graphs when appropriate, and answer the purpose (0.2 pt). Then you need to discuss about some of the difficulties you had, errors and their possible causes, and suggestions for improvement (0.2 pt). Describe your reasoning using physics terminology and principles. You should explain as completely as possible what goes through your mind that leads you to your conclusion. While we encourage you to discuss the investigations with your partners, your conclusion must be your own thought.