

2013

161 Introductory Physics Lab I

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Introductory Physics Lab I PHYS 161 - Fall 2013

Instructor: Professor Turpin **Office:** 204 **Phone:** 513-745-3009 **E-Mail:** turpin@xavier.edu

Office Hours: Wednesday 5:00 – 6:00, Thursday 5:00 – 6:00, or by appointment.

The goals of this laboratory course are to

- enhance and supplement the material in the introductory physics lecture.
- learn topics not covered in the lecture.
- learn general physics experimental methods.
- practice presenting data in written form.

PHYS 161 is a one credit hour lab courses. PHYS 160 lecture is a separate course with separate grades. The topics covered in lab sometimes complement the lecture, but some topics are independent material.

Phys 161 Lab Schedule Fall 2013

Monday	Tuesday	Wednesday	Thursday
August 26 Introduction	August 27 Introduction	August 28 Introduction	August 29 Introduction
September 2 No Lab – Labor day	September 3 Motion & Graphs	September 4 Motion & Graphs	September 5 Motion & Graphs
September 9 Motion & Graphs	September 10 Acceleration	September 11 Acceleration	September 12 Acceleration
September 16 Acceleration	September 17 Projectile Motion	September 18 Projectile Motion	September 19 Projectile Motion
September 23 Projectile Motion	September 24 Forces & Vectors	September 25 Forces & Vectors	September 26 Forces & Vectors
September 30 Forces & Vectors	October 1 Newton's 2nd Law	October 2 Newton's 2nd Law	October 3 Newton's 2nd Law
October 7 No Lab – Fall Holiday	October 8 No Lab – Fall Holiday	October 9 No Lab – Fall Holiday	October 10 No Lab – Fall Holiday
October 14 Newton's 2nd Law	October 15 Exam I	October 16 Exam I	October 17 Exam I
October 21 Exam I	October 22 Centripetal Force	October 23 Centripetal Force	October 24 Centripetal Force
October 28 Centripetal Force	October 29 Work and Energy	October 30 Work & Energy	October 31 Work & Energy

November 4 Work and Energy	November 5 Momentum in 2D	November 6 Momentum in 2D	November 7 Momentum in 2D
November 11 Momentum in 2D	November 12 Impulse & Newton's 3 rd Law	November 13 Impulse & Newton's 3 rd Law	November 14 Impulse & Newton's 3 rd Law
November 18 Impulse & Newton's 3 rd Law	November 19 Rotation	November 20 Rotation	November 21 Rotation
November 25 Rotation	November 26 No Lab - Thanksgiving	November 27 No Lab - Thanksgiving	November 28 No Lab - Thanksgiving
December 2 Density	December 3 Density	December 4 Density	December 5 Density
December 9 Exam #2	December 10 Exam #2	December 11 Exam #2	December 12 Exam #2

Lab Exams:

You are expected to understand the concepts behind each lab, as well as the procedures used. You must also understand any graphs used in lab. Exams will be mostly multiple choice and closed book/notes.

Make Up Labs:

If you must miss a lab due to a scheduling conflict (for example, athletics) you must advise the instructor one class prior to the absence. Such an absence does not excuse turning in an assignment late, which means you may have to turn work in before you leave.

Absences due to illness or other emergency require you to let the instructor know as soon as possible. Failure to do so may prevent you from making up the lab. In either case a time to make up the lab will be scheduled.

Lab Reports

All reports must be typed (including tables, equations, and thumbnails).

All printed graphs must be titled. All printed graphs must have proper units and labels. Do this before you print the graph.

On all printed graphs, put a written (**handwriting allowed for this only**) explanation of why the graph has this shape and what it shows.

Organization and logical order are first key to any lab report. Your lab report should not be too long; a paragraph for error sources with data tables, thumbnails, and calculations (including percent errors with $\leq 5\%$ about the range of our equipment) along the way.

The second key to good lab report is the conclusion. A conclusion should not be a procedural list of what you did in order. Basically the conclusion is a statement of what you are trying to show and what results, graph shapes, percent errors, etc. demonstrate what you are trying to show.

Lab reports should include good tables, which are easily readable. Many small tables can scatter your data and make comparisons difficult, so try to combine tables when possible. Like almost every number, your table needs units. Put them in the heading for each row or column instead of listing for each variable, unless of course they

are different for different values. **Do not put formulas or calculations in tables!**

Combine multiple parts in the lab when appropriate, and avoid repeating. The reader does not want to wade through paragraphs of repetition. Do not cut and paste large sections of text; instead combine these parts or refer to earlier explanations.

Lab reports should include your report, with all data, calculations, error sources, thumbnails, etc. Printed graphs are put in the back of the report. Finally post-lab questions are the last page Staple as one unit.

Most simple sketches, such as force diagrams, are easily created in most word processors. (If you do not have access to an adequate word processor, a great one can be downloaded from OpenOffice.org, and can save in MSWord's .doc format.)

Lab reports have definite due dates, usually before the lab the next week. This lets you ask me last minute questions in lab, but do not wait until after then to do the report. Lab reports turned in late will be marked "Late". Excessive lateness leads to a lowering of your grade by 3%.

Feel free to bring your lab report by ahead of time and I will look it over with you. I can easily point out subtle points, and make suggestions more easily in person than I can in written form. Come either at office hours or make an appointment. Do so at least one day before the report is due.

Graded Reports

Look at my comments so you do not make the same mistakes; as the semester progresses I will be less lenient with small errors in the lab reports. I will indicate any grammar and typographical mistakes I notice. Minor errors will not change your grade unless they distract from the reading of the report, but you should make every effort to write as well as possible. Structure of your writing will affect your grade, as writing logically helps you think logically.

Grading:

11 lab reports or post-lab assignments
2 lab exams (14 % each)

Grading Scale:	87 B+	77 C+	67 D+
93 A	83 B	73 C	63 D
90 A-	80 B-	70 C-	60 D-

Both the point values and grading scale are subject to change.

The instructor reserves the right to alter this syllabus if circumstances dictate.