PHYS 1430 – General Physics I Lab
Fall 2025

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Course Description

PHYS 1430 is the companion laboratory to PHYS 1410. It is suitable for life science majors and pre-professional students. This laboratory course is separate from the lecture and is separately graded. The laboratory covers the principles and applications of mechanics, sound, and heat.

Purpose

The laboratory course aims to give you "Hands-on" exposure to the concepts and principles you study in class. This lab also engages your scientific writing ability with two mandatory lab reports. An attempt has been made to correlate the labs with your lecture's corresponding topics; however, please realize that a perfect match is not always possible. Your responsibility is to prepare for the lab before coming to the lab, as you might get a topic in the lab before it has been covered in class.

Weekly Lab Schedule

Dates	Experiment
Aug 22	**No Lab**
Aug 29	Orientations - 1 & 2
Sep 5	1. Vector Addition: Force Table
Sep 12	2. Acceleration due to gravity/Free-Fall/Atwood Machine
Sep 19	3. Simple Machines **(Mandatory Lab Report)**
Sep 26	4. Ballistic Pendulum and Projectile Motion
Oct 3	5. Uniform Circular Motion
Oct 10	***MAKEUP LAB WEEK**
Oct 17	6. Torque and Center of Gravity
Oct 24	7. Simple Harmonic Motion **(Mandatory Lab Report)**
Oct 31	8. Archimedes' Principle
Nov 7	9. Expansion of Solids
Nov 14	**No Lab**
Nov 21	10. Standing Waves

Nov 28	**No Lab**
Dec 5	***MAKEUP LAB WEEK**

Attendance

According to the published Weekly Lab Schedule, you must attend and complete labs weekly. Please note that it is your responsibility to attend lab as scheduled. Plan on arriving at the lab at least 10 minutes before the scheduled start time. You must plan on staying in the lab for the entire scheduled time. If you miss a lab or leave before your experiment and post-lab questions are complete, you will receive a 0 for the lab. **Students who miss a lab due to a school-sponsored event must give notice of the absence to the instructor for your specific section at least seven days before the event.** You are responsible for all material in your lab manual, including all introductory material.

Grading

Lab grades are based on *accumulated points*. There are 10 labs offered during the term and two type-written lab reports, making it possible to earn up to a maximum of 1400 points. You may receive up to 100 points for completing each lab experiment (pre-lab 25 points + post-lab analysis 75 points). The two mandatory lab reports are each worth up to 200 points. When determining your grade, be sure to count up your total points in Canvas (including your lab report grades)

A = 1,260+ points
B = 1,120+ points
C = 980+ points
D = 840+ points
F = 0- 839 points

THERE IS NO EXTRA CREDIT AVAILABLE, except as permitted due to exceptional circumstances defined by and at the instructor's discretion. In such a case, students must strictly adhere to revised dates and times designated by the instructor. You can monitor the points you accumulate for labs during the semester by logging on to UNT's Canvas system (https://unt.instructure.com/) and opening the "Grades" link from the left menu under the corresponding course section. Any grade discrepancies related to lab experiments must be brought to your instructor. You are encouraged to seek help with lab grade issues immediately within the same week of the lab.

Lab Reports

Two mandatory lab reports are required and must be submitted through Canvas. Lab reports are due within 7 days after completing the experiment. Therefore, the actual due date for your section will vary depending on the day of the week that you complete the experiment. See the Weekly Lab Schedule for the specific experiments that require a *type-written* lab report.

Submitting Lab Reports

When submitting your report, you must follow the full submission process. This includes uploading the report, confirming the license agreement (checking box), and **submitting** your report with the green submit button. Your report has been properly submitted when you see the digital receipt displayed on the screen. The digital receipt has a **Submission ID** number confirming that Turnitin has received your paper. A similarity report will also be created after successful submission. To access the digital receipt, follow the steps below.

1. Navigate to the course.
2. Click on the **Assignments** tab on the left-hand Course Navigation bar.
3. Click on the assignment (PHYS 1430 Lab Report I or II, for example).
4. Click on the "Submission Details" link on the far right.
5. Click on the Similarity Report indicator to open the Feedback Studio:

6. Click on the download icon on the far right:

7. 

A small window will appear; select "Digital Receipt". The Digital Receipt may take a few moments to download.

If you do not see a digital receipt with a **Submission ID** number, then your paper was not successfully received by Turnitin. Any problems encountered during submission must be reported immediately, no later than the next day the University is open for classes.

The following resources are available to assist you in preparing your lab reports:

- "PIC Full Lab Report" guidelines are included in this syllabus.
- The "Grading" section in this syllabus
- "Writing skills needed for lab report" (see end of syllabus)
- If you have any problems or questions, please contact your instructor

Materials

In order to be admitted into lab, you **must** bring the following with you to each lab:

- Your Lab Manual
- Your Student ID
- Closed-toe shoes
- A calculator with your name on it

Required Text

The lab manual will be available as a PDF on **Canvas**. Students are responsible for viewing and printing sections of the lab manual as needed. During the lab, students are allowed to bring their laptops or another device from which their group can adequately view the lab manual.

Course Sign-Up

Labs begin at the times listed, and there is no late admittance to lab sessions. Lab times are subject to change based on UNT holidays. Refer to notices posted on UNT's Canvas system (https://unt.instructure.com/) for any changes. If you cannot find your class on Canvas, immediately contact the PIC Director at PIC Director@unt.edu.

Lab Procedure Summary

The following is a summary of the procedure to follow to get credit for your lab:

1. Complete the pre-lab quiz on Canvas before coming to the lab. The pre-lab quiz is worth 25 points when completed correctly/accurately.
2. Please bring your student ID, the provided attendance sheet, closed-toe shoes, and a calculator with your name on it to the lab at the scheduled time.
3. In your lab manual: complete your experiment with guidance from the instructor and, before leaving the lab, have the instructor verify that your work is complete and correct.
4. As you exit the lab, make sure your instructor has recrded your attendance.

There is a more detailed procedure in your lab manual. You are required to read and familiarize yourself with the Laboratory Information and Introduction sections of your lab manual.

Lab Safety

- Due to COVID- 19, please make sure you are conversant with the CDC and UNT guidelines and recommendations
- Closed-toe shoes or boots are required for all PIC laboratories. No sandals or open-toed shoes will be allowed in the laboratories. All Teaching Assistants, Laboratory Assistants and other PIC personnel are instructed to not admit any student into the laboratories that do not have proper shoes.
- Always tie back long hair.
- No eating or drinking will be permitted while in the lab.
- In some cases, you will be instructed by the Teaching or Laboratory Assistant to wear safety goggles. These will be made available to you in the relevant laboratory.
- Some experiments require the use of gas flames. Be sure to tie your long hair back and not turn on the gas higher than necessary to reach your objectives. If you smell gas, you have the burner turned on too high. Be careful when handling hot objects.

PIC Tutoring

The PIC Tutorial Lab is available as a free service to students taking undergraduate classes in the Physics department. Tutors working in the Tutorial Lab can help you with lab material, lecture homework, and lecture exam preparation. The Tutorial Lab opens the first day of classes and stays open through final exam week. The Tutorial Lab is located in Hickory Hall 266.

The PIC Tutorial Lab is non-scheduled, meaning you can come in at almost any time during our open hours. We have two to three tutors per hour. The PIC Tutorial Lab hours are subject to change based on UNT holidays. Refer to notices posted in Hickory Hall 266 for any changes to the regular hours.

Academic Dishonesty

You must maintain a high ethical standard. If you are caught cheating, you will receive a zero for the lab in question and possibly an F for the semester. All experiment and post-lab questions should be done in the lab room. Any instances of cheating, including but not limited to copying someone else's pre-lab or lab work, will be reported to the Office of Student's Rights and Responsibilities.

Please refer to the UNT Student Academic Integrity policy:
https://policy.unt.edu/sites/default/files/06.003_StudentStandardsOfAcademicIntegrity_8_2017.pdf

PIC Full Lab Report (detailed below)

Two mandatory lab reports will be assigned for the semester and must be submitted through Canvas **within 7 days after completion** of the experiments. This will give you 1 week to turn the completed report in for grading. The reports will be typed, be written individually and must follow the PIC Report and the writing/composition guidelines seen on the next pages. Use this format as a guideline. Each report is worth up to 100 points.

If you have taken this course previously, you cannot re-submit your old report. **The report must be based on data from experiment performed in the current semester.** If you need help properly submitting your report, contact your TA *before* discussing your questions/issues with the PIC Director/Assistant **immediately**. These questions need to occur **before** the report's due date

PIC Report Guidelines

- Section I – Abstract (25%) **In your words, what was the point of the experiment?**
- In paragraph form, state the experiment objective(s) and how it was tested.
- Include a brief description of the experiment
- State the results and error results. Are the error % high or low and why important?

Why is this experiment important and what are possible applications of this experiment

- Section II – Introduction (20%)
- Write a brief paragraph stating significance and objectives of the experiment.
- Narrative should prove your understanding of the physics of the experiment.

Include explanation/derivation of equations used. All symbols *must* be defined.

Section III – Data, Calculations and Graphs (20%) **Exactly what did you measure, what data did you record?**

- You may include original data sheets initialed by instructor at completion of experiment. Ask your TA if this is required
- You must transfer the data to an excel sheet for easier analysis.
- Example: (note set up of this table, and check APA guidelines for table formatting)

Table 1: Diameter of diffraction beam with respect to changing voltage.

Diff. order n	D (m)	Voltage (V)
1	.0345	3000
1	.0340	3500
1	.0334	4000
1	.0326	4500
1	.0319	5000
Error/Resolutions		
0	± 0.0003	± 50

- You should show each type of calculation with appropriate tables, graphs, numerical results and errors.
- All tables/graphs **must be referenced and labeled** properly.
- All symbols must be defined. Units **must** be included.
- Discuss the graph and the results that the graph represents in terms of your overall goal of a physical constant.

- Graph Example: note set up of graph, and check APA guidelines for graph formatting

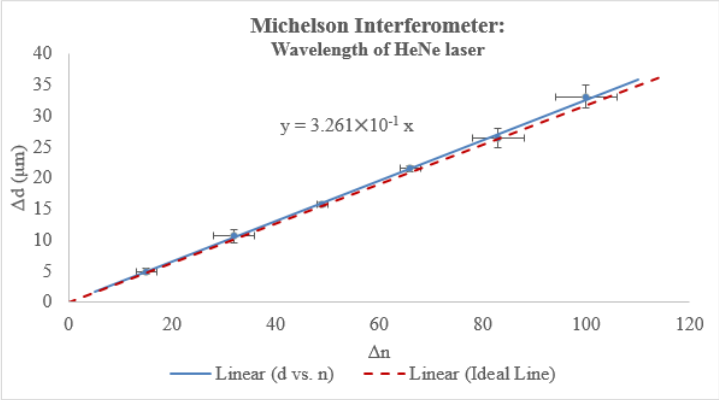

Figure 2: Graph of y vs. x, from table #. Notice these error bars represent such, a linear trend develops with slope representing this we get from equation #.

- Section IV –Results, Error Analysis and Conclusion (30%) **What approximations or assumptions did you make in your analysis? How did these approximations or assumptions affect your calculations or results?**

- Summarize any unusual problem or concerns with the experiment, including statements of how the experiment could be improved.
- When discussing error, make sure to draw from the following calculations to give quantitative results: Use appropriate error calculations for your experiment.
- The questions from your lab manual may help you with a better analysis and to support your discussion of the results.
- Conclusion - **What do your results mean? Explain your understanding and importance of the physics principles you explored in this experiment.**
- Complete discussion of how the results of the experiment support the theory.
- How can errors be reduced?
- Is the method sufficiently precise and accurate?

- Section V-References (5%)
- At the end of your lab report, list your sources in APA format.
- Students may use the lab manual as well as any scientific, reputable sources from the internet in order to have sufficient information available to complete their lab reports.

Quantitative Assessment of Lab Report (This Rubric will be used in Canvas Speedgrader)

Section I – Abstract …….…….	25%
Section II – Introduction ……..……...	20%
Section III – Data, Calculations and Graphs ……..…….	20%
Section V – Results, Error Analysis and Conclusions…….	30%
Section V –References…….…….	5%
Total	100%

Reports which are plagiarized or involve cheating, as defined by the UNT Student Academic Integrity policy, will receive a grade of zero (0).