

# TAMUCC PHYS Lab Policy

Posted online: <http://faculty.tamucc.edu/jspirko/PhysLab/TAMUCCPHYSLabPolicy.pdf>

## **Table of Contents**

(The Table of Contents entries are clickable.)

<b>Table of Contents</b>	<b>1</b>
<b>Lab Safety</b>	<b>2</b>
<b>General Description</b>	<b>2</b>
<b>Student Responsibilities</b>	<b>3</b>
Lab Safety	3
Pre-Lab	3
Lab Activities	3
Lab Reports	3
Absences and Makeups	3
<b>Instructor Responsibilities</b>	<b>4</b>
Lab Safety	4
During Lab	4
Grading	4
Office Hours	4
<b>Lab Report Formats</b>	<b>5</b>
Data Report	5
Formal Report	6
<b>Grading Rubrics</b>	<b>7</b>
Data Report Rubric	7
Formal Report Rubric	7
<b>Sample Data Report</b>	<b>7</b>
<b>PHYS Lab Makeup Policy</b>	<b>8</b>
Allowable Absences	8
MakeUp Methods	8
Communication and Permission	8

# Lab Safety

Lab Safety is our highest priority. Students must be informed about safety issues and must obey any safety rules posted in the lab or given by the instructor.

- University policy, OSHA regulations, and common sense require that all students are informed about laboratory safety before doing anything remotely dangerous in the lab. You must be **registered for SMTE 0095 every semester.** This is a zero-credit, zero-cost course.
- **Every Semester, complete SMTE 0095 Physics Safety Seminar** on Blackboard by the Census Date. During a long semester, this is the 12th class day. During a 5-week summer session, this is Friday of the 1st week.

Physics-specific policies:

- **No food or drinks in the labs.**
- **Closed shoes** are required by University policy.
- You must occasionally wear **impact-resistant goggles.** We have several pair of these in the lab, but you may want to bring your own.
- You must have access to **chemical lab goggles.** These must be goggles with indirect venting to prevent chemicals from getting in your eyes. Check the lab instructions ahead of time to know what kind of eye protection is required for what labs. Here are some sources of chemical goggles:
  - University bookstore (~\$10)
  - [Home Depot](#), [Lowes](#) (~\$4)
  - [Amazon.com](#) (~\$5)

## General Description

- Physics Laboratories start on Monday of the first full week of the semester.
- The lab grade is 25% of the course grade. The lab grade is determined by:
  - 20%: Average of 12 Pre-lab quizzes
  - 50%: Average of 9 Data Reports ([See below.](#))
  - 30%: Average of 3 Formal Reports ([See below.](#))
- The type of report will be on the lab schedule and on the report submission pages.
- All experiments will be performed in groups (3 students per group), and one report will be submitted for each group. Students must physically participate in the lab activity to get credit. Though students must work in groups, with instructor approval individual reports can be submitted.
- All reports will be due at the beginning of the next lab period. Late reports will be accepted at the discretion of the lab instructor but with the **minimum penalty of 10% per week.**
- **Plagiarism is forbidden.** This means you **can't copy-and-paste** from the lab instructions, take data from another lab group, or copy text from any book or website. A lab report containing plagiarism will be rejected, and we will refer the case to the office of Judicial Affairs.

# Student Responsibilities

## Lab Safety

Log in to Blackboard and complete the SMTE-0095 Lab Safety course. ([See above.](#))

### Pre-Lab

- Pre-Lab Practice: Review this. It is posted with your Lab Instructions.
- Lab Instructions: Read them so you are somewhat familiar with the procedure.

## Lab Activities

- **Pre-Lab Recitation:** We'll go over the Pre-Lab Practice. **Participate, Ask Questions!**
- **Pre-Lab Quiz:** Take this 30-minute quiz, which is part of your lab grade. Calculator, computer, book, notes are all okay, but the quiz is **individual**. No collaboration.
- **Measurements:** Make sure you get all measurements. Suggestion: Use a spreadsheet like Excel or Google Sheets so that the calculations can be done in place.
- **Analysis:**
  - At a minimum, look over the analysis to make sure you have all necessary experimental parameters and data.
  - Ideally, complete the analysis so the instructor can point out any mistakes.
- **Share the Data:** Every lab partner must have access to the data after the lab period. For example, use the Blackboard Group File Exchange. If the data is lost, many points will be lost.
- **Clean-up:** Return the equipment neatly to where you got it.

## Lab Reports

- Know whether you must complete a [Data Report](#) or a [Formal Report](#).
- Communicate with your group so that everyone has input into the lab report. Don't leave the entire process up to one partner.
- Complete the lab report by midnight on the day of your next lab.

## Absences and Makeups

Attendance at lab is required, and absences must be avoided at all costs. That being said, emergencies happen. The most important thing is to communicate with everyone involved. This includes your instructor, your lab partners, and instructors of other lab sections if necessary. The formal policy is included. ([See Below.](#))

# Instructor Responsibilities

So much Syllabus space is devoted to what students must do. It's good for students to know what they can expect of their instructors.

## Lab Safety

- Make sure students have completed the SMTE-0095 Lab Safety course. ([See Above.](#))
- Report any incidents requiring medical attention (even a band-aid) to the Lab Coordinator, Carol Haley.

## During Lab

- **Pre-Lab Recitation**
  - Go over concepts, equations, and problems in the Pre-lab practice. When the lab and lecture get out of synchronization, extra attention is necessary.
- **Pre-Lab Quiz**
  - Maintain a quiz-like atmosphere for 30 minutes or until all students are complete, whichever happens first.
- **Lab Activity**
  - Help students set up the equipment, but obviously don't do the lab for them. Occasionally build a sample setup at the front of the room.
  - Review student results and make suggestions regarding what errors can be explained and what errors are "mistakes" that must be fixed.

## Grading

- Quiz Grading - Grade Pre-lab quizzes by the end of the lab session.
  - Ideally, grade Pre-lab quizzes as soon as possible. Immediate feedback allows students to learn while the information is still fresh in their heads.
- Lab Grading - Grade labs within 1 week of submission.

## Office Hours

- Full-time instructors must have 5 hours/week of Office Hours when students may drop in and ask questions.
- Lab-only instructors may make themselves available for Office Hours before and after lab.

# Lab Report Formats

## Data Report

We understand how time-consuming writing lab reports can be. So we created this format to speed the process while still giving you valuable experience and giving us something to grade. A Data Report contains:

- **Heading** – We'd like this to be at the top of every page, which all word processors can do.
  - Title of Lab Report
  - List of Authors
  - Date of Lab
- **Abstract** – This is a one or more paragraphs of **text that summarizes the lab activity**.
  - It is not divided into sections.
  - The Introduction should be 1-3 sentences.
  - The Methodology should be fairly general. Only a few sentences are needed. This is only an Abstract, so less detail than in the Main Body. Describe what the equipment did, what was measured, and how that is related to the final analysis.
  - The Discussion must contain summary of the results. This means some numerical value, such as the final result of the analysis, must be given. If there is a list of final values, give the most important one or a typical value.
  - The Conclusion should be 1-3 sentences, and it must depend on the results. An explanation of any source of error should be included.
- **Tables and Figures**
  - All of your results of measurements and analysis should be presented in Tables and/or Figures.
  - Each Table and Figure must be labeled (Table 1, etc.) and **captioned**.
  - Do beautify your Tables.
    - Make sure the results are readable.
    - Trim out unnecessary decimal places.
    - Label each row and/or column. This should include the name and/or symbol, along with the units in parentheses.
    - Include the expected accuracy of the value (when requested).
  - In a graph, the axes must be labeled with a name or symbol, with units in parentheses.
    - If a trendline is requested, leave the equation on the graph.
    - Transcribe the trendline equation into the caption **using physics variables**.

Note that there is no Main Body (the longest part of most Lab Reports).

A sample report is located at: <https://goo.gl/Kf157H> (lower-case ell in the middle)

The corresponding spreadsheet is also online, at <https://goo.gl/apFZ5U>.

Notice that the table was formatted for presentation in the report.

## Formal Report

This format closely matches what academic publishers want for scientific journal articles.

A Formal Lab Report contains:

- Heading – Just like a Data Report.
- Abstract – Just like a Data Report.
  - Remember it is a summary, not an introduction.
  - The Abstract should not say anything that is not stated elsewhere in the report.
- Main Body – 1-2 pages of prose. This is the main text of your lab report. Divide this text into sections:
  - Introduction – for the reader, not from the Instructions!
  - Methodology – Not a “standard operating procedure”. Just describe what you did, with enough detail that a knowledgeable person could figure it out. Include any equations that will be used in the analysis.
  - Discussion – Describe the measurement results, analysis, and results of the analysis. Be clear about how each value was obtained. Don’t list lots of similar values. Give a sample value or range of values, and refer to the Tables for the rest. Intermediate calculation results aren’t needed here.
  - Conclusion – A sentence or two that summarizes the scientific results (not the skills gained). For example, you might compare the results of your data analysis with the expected values to say whether your results support or appear to contradict the theory. The theories we test are well-established, so if the theory is contradicted, you should explain where the errors may have come from. The conclusion must depend on your numerical results! It cannot contradict your results.
- Tables and Figures – Just like a Data Report.

# Grading Rubrics

Grading rubrics are posted in Blackboard and students are advised to refer to them before submission and after receiving grades.

## Data Reports

Here are **examples** of common ways of losing points.

- 20 points: Formatting.
  - Full credit if the report is easy to read and navigate.
  - -5 points: Missing captions.
  - -2 to 5 points: Pieces or blocks of unreadable material.
- 40 points: Experimental Data and Results
  - Basically grades the Tables and Figures. Full credit if all measured values are presented in Table/Figure form, all requested results are present, and all results are within the acceptable margins of error without mistakes.
  - -10 points: Missing Table or Figure.
  - -5 points: Table heading or Graph axes not properly labeled with units.
  - -5 points: Graph missing trendline and equation when requested.
  - -5 to 20 points: Mistake in data taking or in analysis.
  - -5 to 10 points: Confusing experimental with accepted or theoretical values
- 40 points: Abstract
  - -10 points: Giving an imperative step-by-step procedure instead of general methodology.
  - -5 points: Summarizing results without any numerical values.
  - -5 points: Presenting a vague conclusion that does not depend on the results.

## Formal Reports

- 5 points: Formatting
- 20 points: Abstract
- 10 points: Procedure
  - Includes the Introduction and Methodology in the text.
- 25 Points: Collected Data
  - Includes most of the Tables and Figures.
- 20 Points: Data Analysis
  - Includes processed values in the Tables and Figures.
  - Includes text description of how analysis was performed.
- 20 Points: Discussion and Conclusions
  - Final sections of the text.
  - Major results must be described and conclusions must be drawn from the results.

## Sample Data Report

A sample Data Report is available as a separate document:

<https://goo.gl/Kfl57H> (lower-case letter "ell" in the middle)

# PHYS Lab Makeup Policy

Lab is a vital part of the Physics experience, so it's a required part of the course. There are only 12 or so labs, and each one is important. **Generally, don't miss lab.** Adjust your work schedule so that it doesn't conflict with lab. If you do miss a lab, you cannot just help with the report to get credit. You must make up the activity **and** help with the report to get credit. If your group already submitted their report by the time you make up the activity, you'll have to write your own original report.

## Allowable Absences

Students may miss lab under the following circumstances:

- With 24-hour minimum advance notice, for school-related events, job interviews, NCAA athletic competitions, etc.
- Without advance notice, for emergencies only. Examples of emergencies are a car accident, court subpoena, doctor appointment you can't reschedule, death or sickness in the family. Documentation is required within one week of a missed lab for an emergency. The documentation may include an accident report, citation, doctor's excuse.

## MakeUp Methods

To make up a missed lab, a student may:

- **Attend another lab section.** This only works if the other lab section is doing the same lab you missed. Use the procedures below to communicate and get permission. After doing the lab, you should get together with your normal lab group and help them write the report. You can use either set of data (yours or theirs) in the lab report. Hand it in with your lab group as usual.
- **End-of-semester makeup.** If there is a makeup week, one (and only one) lab may be made up at the end of the semester. Because of the University schedule, not every semester has a makeup week.
- **Exempted from lab report.** A maximum of two (2) lab reports may be exempted. This is only allowed if you cannot make up a lab for unforeseen circumstances. Your instructor must agree that this situation was unavoidable. In this rare case, it can be exempted from the lab grade computation. The lab quizzes must still be made up.
- **Accept a zero (0).**

## Communication and Permission

Talk to your lab instructor as soon as you know you will miss lab, especially if you are an athlete.

Students attending another lab section must contact the hosting instructor!

- At least 24 hours ahead of time, send an email, copied to both your lab instructor and the lab instructor who oversees the lab you want to attend.
- The instructor has the right to deny students if the room is already full or if the students are abusing this privilege.
- In the email, introduce yourself and say why you think you should be allowed a makeup. Make sure to include in the message:
  - Your full name,
  - Your lab section (number and day/time)



- Date and title of the lab,
  - Date you want to make it up
- When attending the other lab section, bring a piece of paper with the same information. (Maybe print the email.)