Department of Physics and Astronomy

Laboratory for Classical Physics (II)
PHY 134 Spring 2020

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About

This is the organizational page for the Physics Introductory Labs PHY 134 for Spring 2020.

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Scope

The scope of the introductory labs is to give an understanding of basic experimental methods applied in physical sciences. The experiments performed during the lab sessions are closely related to the topics covered in the lectures in PHY 127,132 or 142.

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Overview

You will perform each week an experiment as indicated in the **Manuals and Course Schedule** section. You have 2 hr 20 min time to perform each experiment. Each experiment will come with a manual that you can access from this webpage.

You are required to perform each lab experiment by yourself, mostly together with a lab partner.

Your perfomance in the lab session will be evaluated by your teaching assistant. The evaluation is based on a pre-lab quiz and a written lab report that you submit in the week following the lab experiment. Please refer also to **Lab Report Guide**.

Your performance/report will count 100%, of which the pre-lab quiz is worth to 15%, toward your grade on the particular lab experiment.

Your final grade will be an average from your single lab grades scaled by a factor that will be determined at the end of the semester. This final grade will be a letter grade ranging from A to F.

Your lab report will be graded as follows:

1. **Pre-Lab Quiz (15 pts):** Posted to Blackboard. ***To be submitted before the beginning of the relevant lab.***

2. **Structure (15 pts):** Consists of the following sections of your report:

   ○ Introduction: A short overview of the experiment

   ○ Results: Outline what you get (plots, key calculated quantities, etc.).

   ○ Conclusion: Key insights of the experiment and caveats thereof

3. **Data table (10 pts):** A reasonably-formatted copy of the data you took in lab (along with calculated quantities, as relevant).
4. **Analysis (60 pts):** Varies, consists of the following components:
   - Graphs (see the **PHY133/134 Plotting Tool**)
   - Calculations, including uncertainty propagation (relevant work shown)
   - Discussion: Various other subsections of your report, which will vary from lab to lab

For more details, see the **Guide to Lab Reports**.

Manuals and Course Schedule

Here is the schedule of labs for the semester:

The first lab sessions will take place in the week starting from **Monday, January 27, 2020.**

- Lab 0 (January 27 - January 30): **Introduction to Labs, Expectations** and **Error Analysis**
- Lab 1 (February 03 - February 07): **The Electric Field (Data Sheet)**
- Lab 2 (February 10 - February 14): **The Oscilloscope (Data Sheet)**
- Lab 3 (February 17 - February 24): **Capacitors   (Data Sheet)**

February 24 - February 27: Make-up Lab Week for Labs 1 - 3. No lab classes.

- Lab 4 (March 02 - March 05): **Ohm's Law (Data Sheet)**
- Lab 5 (March 09 - March 12): **Magnetic Force   (Mag Force Data)** Rooms A-119, A-130
                  e/m of the Electron   (e/m Data Sheet) Room A-116

March 16 - March 22: Spring Break. No classes.

- Lab 6 (March 23 - March 26): **e/m of the Electron   (e/m Data Sheet)** Rooms A-119, A-130
                  Magnetic Force   (Mag Force Data) Room A-116

March 30 - April 02: Make-up Lab Week for Labs 4 - 6. No lab classes.

- Lab 7 (April 06 - April 09): **Inductors   (Data Sheet)**
- Lab 8 (April 13 - April 16): **Resonance   (Data Sheet)**
- Lab 9 (April 20 - April 23): **Geometric Optics (Data Sheet)**
- Lab 10 (April 27 - April 30): **Interference   (Data Sheet)**

May 04 - 07: Make-up Week Day for Labs 7-10.

Folder of All Data Sheets

Reference Documents and Tools

Here are some documents you may find helpful (You can find more information via links on the **Reference Documents Page**:

Guide to Lab Reports

Guide to Uncertainty and Error Analysis (Quick Reference)

Google Sheets Tutorial

Guide to Making and Using Plots

Here is a link to the plotting tool we will use to make our graphs in this class:

PHY133/134 Plotting Tool

Lab Sections

Assignments to announced circa January 27, 2020

Section	When	Where	Teaching Assistant
PHY134 L01	Mo 12:00pm - 2:20pm	A-116	TBA
PHY134 L02	Mo 12:00pm - 2:20pm	A-130	
PHY134 L03	Mo 2:30pm-4:50pm	A-116	
PHY134 L04	Mo 2:30pm-4:50pm	A-130	
PHY134 L05	Mo 5:00pm-7:20pm	A-116	
PHY134 L06	Mo 5:00pm-7:20pm	A-130	
PHY134 L07	Tu 12:00-2:20pm	A-116	
PHY134 L08	Tu 12:00-2:20pm	A-130	
PHY134 L09	Tu 8:00am-10:20am	A-119	
PHY134 L10	Th 8:00am-10:20am	A-119	
PHY134 L11	We 2:30pm - 4:50pm	A-116	
PHY134 L12	We 2:30pm - 4:50pm	A-130	
PHY134 L13	We 5:00pm - 7:20pm	A-116	

PHY134 L14	We 5:00pm - 7:20pm	A-130
PHY134 L15	Th 12:00 - 2:20pm	A-116
PHY134 L16	Th 12:00 - 2:20pm	A-130
PHY134 L17	Th 2:30pm-4:50pm	A-116
PHY134 L18	Th 2:30pm-4:50pm	A-130
PHY134 L19	Th 5:00pm - 7:20pm	A-116
PHY134 L20	Th 5:00pm - 7:20pm	A-130
PHY134 L21	Tu 8:00am - 10:20am	A-116
PHY134 L22	Tu 8:00am - 10:20am	A-130
PHY134 L23	Th 8:00am - 10:20am	A-116
PHY134 L24	Th 8:00am-10:20am	A-130
PHY134 L25	Mo 12:00pm - 2:20pm	A-119
PHY134 L26	Mo 2:30pm - 4:50pm	A-119
PHY134 L27	Mo 5:00pm - 7:20pm	A-119
PHY134 L28	Tu 12:00 - 2:20pm	A-119
PHY134 L29	We 2:30pm - 4:50pm	A-119
PHY134 L30	We 5:00pm - 7:20pm	A-119
PHY134 L31	Th 12:00pm - 2:20pm	A-119

Due Dates, Late Work and Absence Policies

You are responsible for keeping track of deadlines for your lab reports. A list of deadlines (and return dates for work) is available here: **Due Dates**

Be alert to announcements about changes to this schedule from your TA or via Blackboard.

Any lab report submitted after the deadline will not be considered and receive zero points for the lab experiment.

Exceptions for partial credit may be granted by a TA or the course instructor, with suitably documented reasons.

If you need to be absent for a lab experiment you will have to provide written documentation for a significant reason to be absent, e.g., a medical note from your doctor or a written document about jury duty.

With such documentation, you will have the opportunity to make up the lab experiment in the dedicated make-up week. Under such circumstances, please submit a make-up request via the **PHY134 Make-Up Request Form**

Contact Us

There are three ways to ask questions or report problems:

- To contact your TA, use the e-mail addresses provided at the top of this page. This is the best option for lab-specific questions, such as checking requirements.

- To contact all TAs, use PHY134_lab@stonybrook.edu. This is the best option for general physics questions. If you cannot get in touch with your own TA and have a question on how to do a calculation (or why numbers look weird), this is also a reasonable place to contact.

- For administrative concerns, contact the course instructor, Richard Lefferts, at phy_introlabs@stonybrook.edu or in Office Hours, 1-3pm Thursday in A-129 of Grad Physics. This is the best option if you have a problem with your TA or something of that nature.