

Laboratory for Introductory Physics for Life Sciences (II)

PHY 122 Lab Spring 2020

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About

This is the organizational page for the Physics Introductory Labs portion of PHY 122 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 lecture.

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Overview

You will perform each week an experiment as indicated in the **Manuals and Course Schedule** section. You have 1 hr 50 min time to perform each experiment, by yourself or with a lab partner. Each experiment will come with a manual that you can access below. For each lab, your performance will be evaluated by your teaching assistant based on the following components:

1. **Pre-Lab Quiz (15 pts):** Short set of questions (on Blackboard) about lab procedure and goals.
2. **Data table (10 pts):** A reasonably-formatted copy of the data you took in lab (along with calculated quantities, as relevant).
3. **Analysis (60 pts):** Varies, consists of the following components:
 - Graphs (see the [PHY121/122 Plotting Tool](#))
 - Calculations, including uncertainty propagation (relevant work shown)
 - Questions (listed in lab manuals; some selection will be chosen by your TA)
 - Other: Some labs require other specific items, which will also belong to this section.
4. **Abstract (15 pts):** A concise summary of all important results of the experiment.

The pre-lab quiz will always be due on the same day that the lab is performed. All other components will generally be due by the start of the subsequent lab class, with possible exceptions to be specified by your TA.

Reports are to be done individually (including data collection - you and your partner should independently record all data). Although collaboration is allowed, your work should be your own. Work that is duplicated between reports will be punished severely. Your final score 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 lab score will contribute 25% to your grade in PHY 122. You will receive a single final grade for PHY 122.

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Manuals and Course Schedule

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

- Lab 0 (January 27 - January 30): **Introduction to Labs**
- Lab 1 (February 03 - February 07): **The Oscilloscope (Data Sheet)**
- Lab 2 (February 10 - February 14): **The Electric Field (Data Sheet)**

- Lab 3 (February 17 - February 24): **DC Circuits (Data Sheet)**

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

- Lab 4 (March 02 - March 05): Magnetic Forces
- Lab 5 (March 09 - March 12): **Magnetic Field/Induction (Data Sheet)**

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

- Lab 6 (March 23 - March 26): Capacitors

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

- Lab 7 (April 06 - April 09): **Reflection and Refraction (Data Sheet)**
- Lab 8 (April 13 - April 16): **Optical Instruments (Data Sheet)**
- Lab 9 (April 20 - April 23): **Diffraction, Interference, and Polarization (Data Sheet)**
- Lab 10 (April 27 - April 30): **Atomic Spectra (Data Sheet)**

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

Link To All Data Sheets

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Reference Documents and Tools

Here are some documents you will find helpful. You can find more information via links on the **Reference Documents Page**.

Lab Report Expectations

Guide to Uncertainty and Error Analysis

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:

PHY121/122 Plotting Tool

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Sections

Section	When	Where	Teaching Assistant
PHY122 L01	Mo 12:00 - 1:50pm	A-120	TBA
PHY122 L02	Mo 12:00 - 1:50pm	A-118	
PHY122 L03	Mo 2:00pm - 3:50pm	A-120	
PHY122 L04	Mo 2:00pm - 3:50pm	A-118	
PHY122 L05	Mo 4:00pm - 5:50pm	A-120	
PHY122 L06	Mo 4:00pm - 5:50pm	A-118	
PHY122 L07	Th 3:00pm- 4:50pm	A-120	
PHY122 L08	Th 3:00pm- 4:50pm	A-118	
PHY122 L09	Tu 1:00pm- 2:50pm	A-120	TBA
PHY122 L10	Tu 1:00pm- 2:50pm	A-118	
PHY122 L11	We 2:30pm - 4:20pm	A-120	
PHY122 L12	We 2:30pm - 4:20pm	A-118	TBA
PHY122 L13	We 4:30pm - 6:20pm	A-120	
PHY122 L14	We 4:30pm - 6:20pm	A-118	TBA
PHY122 L15	Th 1:00pm - 2:50pm	A-120	
PHY122 L16	Th 1:00pm - 2:50pm	A-118	TBA

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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 **PHY122 Make-Up Request Form**.

If you are absent for a non-excusable reason your lab grade for that particular experiment will be Zero (0) points! If you are absent for a non-excusable reason for more than one lab you will fail PHY 122.

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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 PHY121_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 and TA issues contact the course instructor, Richard Lefferts, at phy_introlabs@stonybrook.edu.

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