

# PHYSICS 22000 LAB SYLLABUS

## FALL 2022

**Lecture:**

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**Lab Coordinator:** Dr. Andrzej (*Andrew*) Lewicki - lewicki@purdue.edu

Welcome to **Physics 22000** laboratory. This semester, you will explore the fundamental concepts of mechanics by performing experiments, collecting data and analyzing your results. Physics 22000 laboratory is not a separate course. It is a component of Physics 22000 course.

***General description:***

Labs meet in **room 121 or in room 139** of the Physics (PHYS) Building. The exact schedule of experiments is located at the end of this lab syllabus. Since both lab rooms: PHYS 121 and PHYS 139 are connected to the ITaP computer network, you need to have the **Purdue career account** to be able to run experiments!

Lab reports are due at the end of each experiment.

Always bring a calculator to the lab. **Do NOT bring drinks or food to the lab!**

The **help center** for Physics 22000 is in **Room 290** of the Physics Building. The help center schedule is available at the following address:

[http://www.physics.purdue.edu/academic-programs/docs/help\\_centers/HC218220.pdf](http://www.physics.purdue.edu/academic-programs/docs/help_centers/HC218220.pdf)

***Lab procedures:***

Before coming to lab, you must answer all prelaboratory questions scheduled for that week. These questions are closely related to the activities and measurements you will do in lab. The prelaboratory questions typically require 20-30 minutes of effort. The prelaboratory questions are your individual work, so everyone is expected to complete them. **The prelaboratory questions must be answered on-line** using the *MasteringPhysics* (the same online software as you going to use for homework assignments). If you exceed the number of allowed attempts for a prelab question, then you would not get credit for that question. In other words, no partial credit above the allowed number of attempts. **The deadline for prelaboratory questions is on Tuesday, 9:30 AM for all lab sections.** Check the lab schedule at the end of this lab syllabus for exact dates. If you submit answers to the prelaboratory questions after the posted deadline, then your score will be lowered by 20% for each day that it is late. The prelaboratory

questions are graded by computer and the scores will be posted in the course gradebook on Brightspace, but not instantaneously. **It usually takes a few hours** before the scores are transferred from MasteringPhysics to Brightspace. Use at least **four significant figures** in your calculations. The prelaboratory questions must be completed and submitted **individually**.

During the two-hour laboratory period, you will observe phenomena, manipulate the lab apparatus, collect data and ask questions. Be on time for the lab. Remember to **sign the lab attendance list!** Your lab TA will briefly review the theory behind the experiment and describe the lab equipment to be used. Next, you will follow the lab procedures described in the lab manual, collect data, calculate results and prepare required graphs.

In the Physics 22000 lab, you will work with a lab partner. In all data sheets, you will find a pair of parentheses with an empty space in between them: (     ). You are required to write appropriate **unit** in that space, e.g., ( m/s ). Results without units are not complete!

**Write your name and your partner's name** as well as the current date and time on the top of the lab cover page located at the end of each experiment in the lab manual. Only one set of data sheets for you and your lab partner is required (with both names on the first page).

Students are expected to **complete the lab report and return it to the lab TA before the end of the scheduled lab time**. All lab make-ups should be done during the scheduled lab make-up weeks (see the lab schedule on the last page).

ITaP is enforcing **print quota** on all printers connected to the ITaP network. Please be aware of your balance and print responsibly. All printouts required in the lab are part of your print quota.

### ***Grading practice:***

Each set of pre-laboratory questions is worth up to 3.5 points and lab report is worth up to 6.5 points (i.e., 10 points combined). We have ten labs scheduled for this semester (10 labs\*10 points = 100 points). The score of 100 lab points (the perfect score or 100%) will translate into a maximum of points allowed for the lab this semester. Check the course syllabus for information about how points are distributed among all course components (labs, homework assignments, exams) this semester.

Lab points are not converted into A, B, C, ... grades. At the end of the semester, the sum of your points earned for Physics 22000 (lab + recitations + exams) will be converted into one final letter grade.

If you have missed an experiment for a **valid reason** (e.g., illness):

- Give a written documentation to your lab TA during the next lab or bring it to his office and ask permission to make-up the missed lab.

- All lab make-ups are done in the same room at the same day of the week and the same time as regular classes.
- You may contact the lab coordinator to get an extension for the prelabs deadline in documented emergency or illness.
- If you have more questions about lab make-ups, please ask the lab coordinator.

Students are not allowed to make up late lab reports or to make up more than one experiment during the scheduled lab make-up time. Re-doing labs is not possible. Make-ups are only for those who missed labs for a legitimate reason and got TA's permission to make-up labs.

You may not copy answers, lab reports or allow your answers to be copied, by any other students (except of your lab partner). Any violation of the above standards will subject the offender to penalties allowed by the Purdue University. If you wonder whether a course of action violates this policy, simply ask in advance. Any attempt to forge data (e.g., copying data from previous semesters or from other students) will be penalized!

In a case of a lengthy illness, (e.g., two or more weeks) you need to get permission from the **lab coordinator** or the faculty in charge of the Physics 22000 course to make up the missed labs.

If you have any questions concerning the lab policies, then please ask the lab coordinator. **Keep all graded lab reports** until the end of semester.

## Physics 22000 Laboratory - Fall 2022

WEEK	DATE	EXPERIMENT TITLE	REQUIRED
1	8/23-26	<b>Introduction and Math Self-Diagnostic Test</b>	Attendance is required
2	8/30-9/2	<b>M1 - Measurements and Experimental Errors</b>	M1 Prelaboratory Questions (due on 8/30, 9:30AM) M1 Lab Report
3	9/6-9	<b>M2 - Newton's Laws of Motion</b>	M2 Prelaboratory Questions (due on 9/6, 9:30AM) M2 Lab Report
4	9/13-16	<b>Lab make-up for experiments: M1 – M2</b>	
5	9/20-23	<b>M3B – Projectile Motion</b>	M3B Prelaboratory Questions (due on 9/20, 9:30AM) M3B Lab Report
6	9/27-30	<b>M4 - Circular Motion</b>	M4 Prelaboratory Questions (due on 9/27, 9:30AM) M4 Lab Report
7	10/4-7	<b>M5 - Impulse and Momentum</b>	M5 Prelaboratory Questions (due on 10/4, 9:30AM) M5 Lab Report
8	10/11-14	<b>October Break</b>	
9	10/18-21	<b>M6 – Work and Energy</b>	M6 Prelaboratory Questions (due on 10/18, 9:30AM) M6 Lab Report
10	10/25-28	<b>Lab make-up for experiments: M3B - M6</b>	
11	11/1-4	<b>M7 - Rotational Motion</b>	M7 Prelaboratory Questions (due on 11/1, 9:30AM) M7 Lab Report
12	11/8-11	<b>M8 - Archimedes' Principle</b>	M8 Prelaboratory Questions (due on 11/8, 9:30AM) M8 Lab Report
13	11/15-18	<b>M9 - Pendulum</b>	M9 Prelaboratory Questions (due on 11/15, 9:30AM) M9 Lab Report
14	11/22-25	<b>Thanksgiving Vacation</b>	
15	11/29-12/2	<b>M10 - Standing Waves</b>	M10 Prelaboratory Questions (due on 11/29, 9:30AM) M10 Lab Report
16	12/6-9	<b>Lab make-up for experiments: M7 - M10</b>	