FLORIDA POLYTECHNIC UNIVERSITY

Welcome to PHY2048L – Physics 1 Laboratory

This course is part of the STEM core, a set of six critical and foundational courses consisting of mathematics, chemistry, physics, programming, and STEM applications. These courses build the skills and conceptual understanding you need to succeed in all degree programs. Completing these courses early in your university education builds the foundation for academic success in Florida Poly's STEM degrees and creates a smooth path to degree completion.

The STEM core courses share many of the same course policies. Moreover, the courses strive to set consistent expectations of what it means to take responsibility for your own out of class learning and honing your skills to do university-level work. They are challenging, so make these STEM Core courses a priority!

Course Information

- **Course Number and Title:** PHY 2048L Physics 1 Laboratory
- **Credit Hours:** 1
- **Academic Term:** Spring 2026

Course Meeting Information

Section	Instructor	Meeting Time	Room
1	Ms. Manimegalai Ramamourty	Wed 8:00-9:50 am	IST 1051
2	Ms. Manimegalai Ramamourty	Wed 10:00-11:50 am	IST 1051
3	Dr. Hengzhou Liu	Fri 3:00-4:50 pm	IST 1051
4	Dr. Emad Fouad	Wed 1:00-2:50 pm	IST 1051
5	Dr. Stephanie Eckert	Wed 3:00-4:50 pm	IST 1051
6	Dr. Nathaniel Hermann	Thu 8:00-9:50 am	IST 1051
7	Ms. Manimegalai Ramamourty	Thu 10:00-11:50 am	IST 1051
8	Ms. Manimegalai Ramamourty	Thu 1:00-2:50 pm	IST 1051
9	Dr. Ilya Mingareev	Thu 3:00-4:50 pm	IST 1051
10	Dr. Nathaniel Hermann	Fri 8:00-9:50 am	IST 1051
11	Dr. Hengzhou Liu	Fri 10:00-11:50 am	IST 1051
12	Dr. Hengzhou Liu	Fri 1:00-2:50pm	IST 1051

Instructor Contact and Office Hours

All office hours will be in the instructor's office listed in the table below.

Sections	Instructor	Email and Office	Monday	Tuesday	Wed	Thursday	Friday
1, 2, 7, & 8	Ms. Ramamourty	mramamourty@floridapoly.edu Lab prep room (1051A)			12:00-12:50	12:00-12:50	
3, 11, & 12	Dr. Liu	hliu@floridapoly.edu IST 2108	9:00-9:50		10:00-10:50	10:00-10:50	
4	Dr. Fouad	efouad@floridapoly.edu BARC 2274	1:00-1:50		12:00-12:50		11:00-11:50
5	Dr. Eckert	seckert@floridapoly.edu IST 2104		11:00-11:50		11:00-11:50	10:00-10:50
6 & 10	Dr. Hermann	nhermann@floridapoly.edu BARC 2276	1:00-1:50		1:00-1:50	3:00-3:50	
9	Dr. Mingareev	imingareev@floridapoly.edu IST 2097	1:00-1:50		11:00-11:50		1:00-1:50

Course Details

Official Catalog Course Description:

- **Course Description:** This laboratory is for PHY 2048: Physics 1 provides practical applications of Newtonian and wave mechanics.
- Prerequisite: None
- **Co-requisite:** PHY 2048 - Physics 1

Required Texts and Materials:

- **Required Text:** No textbook required.
- **Equipment and Materials:** PASCO Capstone Software (available with student licenses) and Laboratory Experiment Stations, Virtual (PhET) Simulations, Microsoft Excel (to be prepared by the student) or other document/spreadsheet editor for lab plotting procedures.
- PASCO Capstone Software license key for downloading Capstone:
- Website: https://www.pasco.com/downloads/
- License key: 19f5c-t30o8-4c3m0-pdmop-g1ggu-pge1p

Course Objectives:

Upon successful completion of this course, you should be able to:

- **Demonstrate** the ability to perform experiments relevant to Physics 1 concepts.
- **Analyze** the data obtained from the laboratory experiments.
- **Interpret** the results and graphs based on the defined Physics Laws and Principles.
- **Create** proper data plots and graphs.

Course Learning Outcomes: Upon completion of the course, students should be able to

- **Demonstrate** skills in performing laboratory experiments.
- **Generate,** read, and interpret graphs and data.
- **Calculate** error analysis on experimental results and theoretical known values.
- **Apply** fundamental principles of scientific inquiry.

Alignment with Program Outcomes:

Program Learning Outcomes and General Education Competencies may be found in the Academic Catalog (http://catalog.floridapoly.edu/).

Student Learning Outcomes (SLO) Table

Course Learning Outcome	Learning Level	Program Learning Outcome
Demonstrate skills in performing laboratory experiments.	**Remember** Recognize Recall	1 - an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics 6 - an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
Generate, read, and interpret graphs and data	**Apply and Analyze**	3 - an ability to communicate effectively with a range of audiences

	Execute Implement Differentiate Organize	
Calculate the error analysis from experimental results and theoretical known values.	**Understand** **Interpret** Compare Explain	1 - an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
Apply fundamental rinciples of scientific inquiry	**Evaluate** Check Critique	1 - an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics 3 - an ability to communicate effectively with a range of audiences

Academic Support Resources

- **Library**: Students can access the Florida Polytechnic University Library through the University website and Canvas, on and off campus. Students may direct questions to library@floridapoly.edu.
- **Peer Learning Strategists (PLS)**: Are specially trained student leaders who help their peers strategize approaches to course content and work through solution methods. PLS work in collaboration with the courses they support so the content and methods are aligned with your instructors' expectations. Students can meet with a PLS in The Learning Center, which is located on the first floor of the Innovation, Science and Technology (IST) building in room 1019.
- **Academic Success Coaches**: All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
- **Writing Center**: Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more details, visit floridapoly.edu/writingcenter.

Course Policies

Requirements and Evaluation

Your grade will be based on:

(5%) Attendance and Participation
(20%) Pre-Lab Quizzes
(65%) Lab Assignments
(10%) Cumulative Lab Quiz

Grading Scale

Below is the grading scale that will be used in the course. (See also University Grading Policy).

Grade	A	B+	B	B-	C+	C	D	F
Percentage	≥ 90%	87% - < 90%	83% - < 87%	80% - < 83%	77% - < 80%	70% - < 77%	60% - < 70%	< 60%
GPA	4.0	3.33	3.0	2.67	2.33	2.0	1.0	0.0

Attendance and Participation

- Students in this course are expected "to attend all of their scheduled University classes and to satisfy all academic objectives as defined by the instructor" (University Policy, FPU-5.0010AP).
- A+ Attendance will be used to track attendance. Falsifying attendance for yourself or for another student is an act of academic dishonesty and is considered a violation of the university's academic integrity policy.
- Students should not come to class if they are feeling ill, particularly you have been directed by a health professional to quarantine. Students who are experiencing an emergency situation that aligns with an academic exercise of consequence (e.g., /a Common Exam) should work with CARE Services at care@floridapoly.edu.
- If you must miss class for a justifiable reason, then please make sure that the absence is excused in a timely manner. Please contact your instructor as soon as possible to discuss your options in this scenario (see Late Work and Missed Labs).
- If you are late by 15 minutes or more, you will be considered absent for that lab session.
- Any unexcused absence will result in a grade of zero for that week's lab report.

Quizzes

- Every regular lab, except for the first lab, will have an associated pre-lab quiz to be completed.
- Pre-lab quizzes will be posted on Canvas.
- The Pre-lab Quiz is due at 11:59 pm on the day before the lab.
- There will be a cumulative lab quiz provided during the last in-class laboratory assignment. The cumulative lab

quiz will be comprehensive and must be completed during the regularly scheduled class period.

Lab Assignments

LAB ASSIGNMENT: An in-person laboratory experiment will be completed together with an online lab quiz. The quiz provides all the background information and laboratory procedures necessary to complete the experiment. During each step provided in the lab procedures, various questions concerning the lab will be asked. In addition, at the end of the lab, a 300-500 word "lab write-up" will be directly submitted through canvas. This is a short report detailing the important features of the experiment and specifically relating the experimental results to known theoretical physical concepts. The assignment itself will be completed during the lab period. The write-up, however, is not due until the day before the next lab. These lab assignments constitute 65% of your final grade. Details for the types of questions that will be encountered through the Lab Assignments are provided below. **The lowest Lab Assignment grade that is not a zero from a missed lab will be dropped.**

Late Work and Missed Labs

- Any missed labs outside of the circumstances mentioned above are not eligible for rescheduling.
- **Late lab assignments and write-ups will be accepted for up to one day after their due date with a 20% penalty.** Late work will not be accepted after that period. Extensions to submission deadlines are not generally granted.
- Make-up labs will only be permitted with proper documentation and in certain unavoidable circumstances. Contact your instructor before the lab to request this permission. If granted, an alternate makeup lab time will be scheduled no more than one week past the original lab date.
- You are responsible for submitting your assignments on time.

Official Email Address

Florida Polytechnic University email is the official method of communication for the University. Students are required to check their email frequently (at least once per day). We cannot reply to any email received from an address other than those that end in floridapoly.edu.

University Policies

Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The Office of Disability Services (ODS), facilitates reasonable accommodations for students with disabilities and documented eligibility. It is the student's responsibility to self-identify as a student with disabilities and register with ODS to request accommodations. If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course through the ODS student portal, and communicate with your instructor about your approved accommodations as soon as possible. Arrangements for testing accommodations must be made in advance. Accommodations are not retroactive. If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible: DisabilityServices@floridapoly.edu; (863) 874-8770; www.floridapoly.edu/disability.

Accommodations for Religious Observances, Practices and Beliefs

The University will reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. (See University Policy.)

Title IX

Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. Resources are available if you or someone you know needs assistance. Any faculty or staff member you speak to is required to report the incident to the Title IX Coordinator. Please know, however, that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University Ombuds Office, BayCare's Student Assistance Program, 1-800-878-5470 and locally within the community at Peace River Center, 863-413-2707 (24-hour hotline) or 863-413-2708 to schedule an appointment. The Title IX Coordinator is available for any questions to discuss resources and options available.

Academic Integrity

Violations of academic integrity regulation include actions such as cheating, plagiarism, use of unauthorized resources (including but not limited to use of Artificial Intelligence tools), illegal use of intellectual property, and inappropriately aiding other students. Such actions undermine the central mission of the university and negatively impact the value of your Florida Poly degree. Suspected violations will be fully investigated, possibly resulting in sanctions up to and including expulsion from the university.

Recording Lectures

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. Recordings may not be used as a substitute for class participation or class attendance. Recordings may not be published or shared in any way, either intentionally or accidentally, without the written consent of the faculty member. Failure to adhere to these requirements is a violation of state law (subject to civil penalty) and the student code of

conduct (subject to disciplinary action). *Recording class activities including, but not limited to, lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), and invited guest speakers is **prohibited**.*

Academic Support Resources

- **Library**: Students can access the Florida Polytechnic University Library through the University website and Canvas, on and off campus. Students may direct questions to library@floridapoly.edu.
- **Tutoring and Learning Center**: The Tutoring and Learning Center (The TLC) provides tutoring to all Florida Poly students who may need additional academic support. The TLC is staffed by students who have excelled in the courses they tutor. They offer support by reviewing concepts and materials from class, clarifying points of confusion and providing assistance with learning strategies. While the focus of TLC is to provide support to students in freshman-level courses, upper-level courses are also tutored at the Center. The TLC is located in the IST Commons (second floor).
    - **Knack Tutoring**: Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Florida Polytechnic University has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit floridapoly.joinknack.com and sign in with your student account.
- **Academic Success Coaches**: All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
- **Writing Center**: Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more detail, visit floridapoly.edu/writing center.

Course Schedule

The course schedule is tentative and subject to change as a result of extreme weather, changes made by the registrar's office or for some other unforeseen reasons. Any updates to these schedules will be announced in class and on Canvas.

Tentative PHY2048L Schedule – Fall 2025

Week	
1/12-1/16 *Week 1*	**Lab 1: Measuring Speed** **+ Overview of Syllabus**
1/19-1/23 *Week 2*	**Lab 2: Calculating Free Fall Acceleration**
1/26-1/30 *Week 3*	**Lab 3: Analyzing Projectile Motion**
2/2-2/6 *Week 4*	**Lab 4: Determine Mass with Newton's Second Law**
2/9-9/13 *Week 5*	**Career Day: No laboratories scheduled for the week**
2/16-9/20 *Week 6*	**Lab 5: Vector Analysis (*Virtual Lab*)**
2/23-2/27 *Week 7*	**Lab 6: Balancing Forces in an Atwood Machine**
3/2-3/6 *Week 8*	**Lab 7: Comparing Work Done to Change in Kinetic Energy**
3/9-3/13 *Week 9*	**Lab 8: Comparing Impulse to Change in Momentum**
3/16-3/20 *Week 10*	**Spring break: No laboratories scheduled for the week**
3/23-3/27 *Week 11*	**Lab 9: Balancing Torque (*Virtual Lab*)**
3/30-4/3 *Week 12*	**Lab 10: Measuring the Moment of Inertia**
4/6-4/10 *Week 13*	**Lab 11: Measuring the Periodicity of a Mass-Spring System**
4/13-4/17 *Week 14*	**Lab 12: Measuring Buoyant Forces (*Virtual Lab*)**
4/20-4/24 *Week 15*	**Lab 13: Observing Harmonic Frequency Modes in Waves on Strings** **Cumulative Lab Quiz**
4/27-5/1 *Week 16*	**Reading days April 29 – May 1: No laboratories scheduled for the week**