



Physics 1 Syllabus

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.

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!

Academic Integrity

The faculty and administration take academic integrity very seriously. 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 an academic integrity hearing and sanctions against the accused student if found in violation. Sanctions range from receiving a zero on the exam or assignment, to expulsion from the university. Repeat offenders are subject to more severe sanctions and penalties. Do not compromise your integrity for a perceived short-term gain.

Course Information

- **Course Number and Title:** PHY 2048 Physics 1
- **Credit Hours:** 3 (lecture)
- **Academic Term:** Spring 2024

Course Meeting Information

Section	Instructor	Meeting Time	Room
1	Dr. Saeidi	MWF 9 – 9:50	IST 1003
2	Dr. Saeidi	MWF 10 – 10:50	IST 1003
3	Dr. Adamek	MWF 11-11:50am	IST 1003
4	Dr. Adamek	MWF 1-1:50pm	IST 1003
5	Dr. Fouad	MWF 2-2:50pm	IST 1003

Instructor Contact and Office Hours

Here is the schedule for office hours. Feel free to come to any office hours to discuss concepts or for coursework help. Please contact your section instructor for questions about specifics discussed in the lecture or about grades. All office hours will be in the instructor's office listed in the table below.

Sections	Instructor	Email and Office	Monday	Tuesday	Wednesday	Thursday	Friday
1 & 2	Dr. Saeidi	ssaeidi@floridapoly.edu ARC 2276	1:30 - 2:30 pm		11:00 am - 12:00 pm		11:00 – 12:00 pm
3 & 4	Dr. Adamek	eadamek@floridapoly.edu ARC 2270	3:00 – 4:00 pm	1:00 – 2:00 pm			10:00 - 11:00 am
5	Dr. Fouad	efouad@floridapoly.edu ARC 2274	9:00 – 10:00 am		9:00 – 10:00 am		12:00 – 1:00 pm

Course Details

Official Catalog Course Description:

- **Course Description:** This is the first of a two-semester sequence of physics for technology and engineering. The course covers Newtonian mechanics and includes motion, vectors, Newton's laws, work and conservation of energy, systems of particles, collisions, equilibrium, oscillations, and waves.
- **Co-requisite or Prerequisite:** MAC 2311 Analytic Geometry and Calculus 1
- **Co-requisite:** PHY 2048L Physics 1 Laboratory

Required Texts and Materials:

- **Required Text:** University Physics Volume 1 by OpenStax, freely available at: <https://openstax.org/details/books/university-physics-volume-1>
- **Equipment and Materials:** TI-30XIIS Scientific calculator (required for homework, quizzes, and exams). Canvas (for Homework, Instructor Notes, Practice Tests, and Grades). University Email for any relevant reminders and updates.

Course Objectives:

This course (through lecture, student coursework, etc.) is intended to:

- **Define** physical concepts (e.g., motion, vectors, force, energy, momentum, rotation, equilibrium, and oscillations),
- **Develop** processes for interpreting physics question prompts to turn them into actionable problems, and
- **Demonstrate** methodologies to derive a clear and concise solution from provided information.

Course Learning Outcomes:

Upon completion of the course, students should be able to

- **Identify** physically relevant equations and **demonstrate** mathematical skills required to manipulate those,
- **Apply** physics concepts to solve problems based on real world situations,
- **Integrate** scientific communication tools (tables, graphs, etc.) with the underlying physics concepts, and
- **Create** accurate solutions that are relevant to the real world based on physical principles.

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 (ABET)
Identify physically relevant equations and demonstrate mathematical skills required to manipulate those.	Remember and Recognize Recall	1 an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
Apply physics concepts to solve problems based on real world situations.	Apply and Analyze Execute Implement Differentiate Organize	1 an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
Integrate scientific communication tools (tables, graphs, etc.) with the underlying physics concepts.	Understand Interpret Compare Explain	3 an ability to communicate effectively with a range of audiences

<p>Create accurate solutions that are relevant to the real world based on physical principles.</p>	<p>Evaluate Check Critique</p>	<p>1 an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics 4 an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts</p>
---	---	---

Course Policies

Requirements and Evaluation

Your grade will be based on:

- 5% participation and attendance (in class),
- 5% reading assignments (on Canvas),
- 20% homework assignments (also on Canvas),
- 5% quizzes (in class),
- 45% three mid-semester exams with each worth 15%, and
- 20% final exam (all common exams scheduled out of class).

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, or if you have been directed by a health professional to quarantine. Students who are experiencing an emergency should work with CARE Services at care@floridapoly.edu.
- Persistent problems with participation may result in a code of conduct referral.
- If you must miss class for a justifiable reason, then please contact your instructor in a timely manner. Excused absences will be permitted at the instructor’s discretion on a case-by-case basis.

Homework and Reading Assignments

There are two types of assignments that need to be completed on Canvas throughout the semester.

- **The reading assignments are intended to provide some quick checks of terminology and simple use of equations both of which are included in the chapter summary at the end of each chapter. These are due on Canvas at 11 pm. These assignments consist of eight multiple-choice questions per chapter and each entire assignment can be reattempted once.**
- **The homework assignments typically consist of four or five problems be solved for which your clear and concise solution must be uploaded. These are also due on Canvas at 11 pm.**
- **Your grade in both categories will be calculated with one assignment of each type dropped. This rule does not apply to unattempted assignments.**

In Class Quizzes

- There will be quizzes covering the major physical concepts (e.g., thermodynamic cycles, electric forces, electric potential, circuit evaluation, electromagnetic waves, optics) discussed this semester. These quizzes will be taken in class and will consist of one multi-part question toward the end of a lecture class.
- The date of each individual quiz and the corresponding content topic will be announced in class and on Canvas before the quiz is given. Each student is responsible for following up with their instructor in the event of an absence.
- The lowest quiz grade will be dropped.

Exams

There will be three common exams and a comprehensive final. Each exam will have fifteen or so questions, some will be multiple choice, and others may require work to be shown.

- Common exam dates listed in the schedule are tentative and will be finalized early in the semester by the Registrar’s

office. The dates/times will be posted to our Canvas course site once available. Exam dates are subject to change, and you should refer to the [Academic Calendar](#) website for the most up-to-date exam schedules. Exam dates will also be announced in class at least one week prior to the scheduled event.

- A list of good, odd problems (which the back of the book has answers for) has been included on the next page of this document. Also, a practice exam will be available before each exam so you can see the exam format and further test yourself before taking it.
- The only materials allowed during the Physics 1 exams are: a pen or pencil to write with, the TI-30XIIS Scientific calculator, and the equation sheet and test provided by the instructor at the beginning of the exam. Use of any other materials is considered cheating.
- Make-up exams will be given only in extreme circumstances with a documented excuse. If you miss an exam because you are sick or participating in a college-sponsored activity, inform your instructor before the exam and provide them with documentation.
- The final exam grade may replace the lowest exam grade if it benefits the overall grade in the course. Note: All exams are required. The final will not replace a 0 from a missed exam.

Solutions to Free Response Problems

You will see a demonstration of algebraic manipulation of equations during the lectures. For the free response homework and exam problems, include an algebraic solution before the quantities and units are placed in. The following is a checklist for what is looked for in a complete and correct solution:

- the correct initial equations/justifications/diagrams are used,
- the mathematical steps are correct, and an algebraic solution is determined,
- all units and scientific notation are properly substituted, and
- the numeric solution is boxed with the correct units.

Late Work

Contact your instructor if you need an extension of a homework or reading assignment for a justifiable reason. Late homework or reading assignments that have not been excused will not be accepted and will not receive credit.

Grading Scale

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

Grade	A	B+	B	B-	C+	C	D	F
Percentage	≥ 90%	89%-87%	86%-83%	82%-80%	79%-77%	76%-70%	69%-60%	< 60%
GPA	4.0	3.33	3.0	2.67	2.33	2.0	1.0	0.0

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 may not reply to email received from an address other than those that end in floridapoly.edu.

Course Schedule

Below is the Spring 2024 Physics 1 schedule. There will be no class on dates with a black background. Dates with a light grey background will have homework due which corresponds to the assignment listed in the prior lecture. Answers for these homework and reading assignments submitted by the students through Canvas. Any updates to this schedule will be announced in class and on Canvas. **Please note the proposed exam dates shown below have not been approved by the Registrar's Office.** In general, the course schedule listed below 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. The University's Academic Calendar and the exam schedule are available at: <https://floridapoly.edu/academics/academic-calendar/index.php>

Week Topic	Monday	Tuesday	Wednesday	Thursday	Friday
1/8-1/12 Units	Syllabus Ch1		Ch 1 & 2		Ch 2 RQ1&2
1/15-1/19 Vectors		HW1	Ch 2		Ch 2 RQ3
1/22-1/26 1-D Motion	Ch 3	HW2	Ch 3		Ch 3&4 RQ4
1/29-2/2 3-D Motion	Ch 4	HW 3	Ch 4		Ch 4 (omit 4.5) RQ5
2/5-2/9 Newton's Laws	Review	HW4	Ch 5 Exam 1 (Ch 1- 4)		Ch 5 RQ6&7
2/12-2/16 Applications	Ch 5	HW5	Ch 6		Ch 6 RQ8
2/19-2/23 Energy	Ch 6 (omit 6.4)		Ch 7		Ch 7 RQ9
2/26-3/1 Conservation	Ch 8	HW6&7	Ch 8		Ch 9 (omit 9.5&9.7) RQ10
3/4-3/8 Momentum					
3/11-3/15 Rotation	Review	HW8	Ch 9 Exam 2 (Ch 5-8)		Ch 10 (omit 10.5) RQ11&12
3/18-3/22 Statics	Ch 10	HW10	Ch 11 (omit 11.4)		Ch 11 RQ13&14
3/25-3/29 Gravity	Ch 11	HW11	Ch 12 (omit 12.3 & 12.4)		Ch 12
4/1-4/5 Fluids	Ch 13 (omit 13.5-13.7)	HW12	Ch 14 (omit 14.7)		Ch 14 RQ15
4/8-4/12 Oscillations	Review	HW13	Ch 14 Exam 3 (Ch 9-12)		Ch 14
4/15/4/19 Waves	Ch 15 (omit 15.5&15.6)	HW14	Ch 15		Ch 16 RQ16
4/22-4/24 Interference	Ch 16 (omit 16.4)	HW15&16	Review		
4/29-5/3	Final Exam (All with focus on Ch 13-16)				

43 Lectures

13 Homework assignment due Tuesdays.

16 Reading assignments due dates

4 Reviews and 4 Exams

Additional Textbook Information

Below is a list of the chapters covered, the sections and corresponding topics that will be omitted, and a list of good additional practice problems that have answers provided at the end of our textbook.

Chapter	Omit	Topics Omitted	Recommended Odd Problems
1			7,9,33,39,49,51,63,67,77
2			13,21,37,47,53,57
3			7,21,27,39,41,47,61,75,113
4	4.5	Relative Motion	9,21,27,35,49,87
5			11,17,35,39,41,67,71,81
6	6.4	Drag Force and Terminal Speed	9,13,37,43,45,125
7			1,35,47,59,69,99
8			7,21,29,43,47,61,83
9	9.5, 9.7	Collisions in Multiple Dimensions, Rocket Propulsion	1,3,5,17,21,37,41,47,63,83
10	10.5	Calculating Moments of Inertia	1,37,47,53,55,71,105
11	11.4	Precession of a Gyroscope	3,19,29,31,49,53
12	12.3, 12.4	Elasticity and Plasticity	7,27,31,39,57,67
13	13.5, 13.6, 13.7	Kepler's Laws of Planetary Motion, Tides, Theory of Gravity	5,9,13,21,25,37,43
14	14.7	Viscosity and Turbulence	9,17,27,33,49,65
15	15.5, 15.6	Damped Oscillations, Forced Oscillations	1,7,27,35,41
16	16.4	Energy and power of a wave	3,9,37,49,61,69

University Policies

Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The University, through 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.

The Office of Disability Services (ODS):
DisabilityServices@floridapoly.edu
(863) 874-8770
The Access Point
[ODS website: www.floridapoly.edu/disability](http://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. You may speak to your professor, but your professors have an obligation 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 discussion [resources and options](#) available.

Academic Integrity

The faculty and administration take academic integrity very seriously. 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 an academic integrity hearing and sanctions against the accused student if found in violation. Sanctions range from receiving a zero on the exam or assignment, to expulsion from the university. Repeat offenders are subject to more severe sanctions and penalties.

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 other than class lectures, 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**.*

Statement on Civility and Collegiality

Faculty and students come to the university for the same reason, which is to participate in a highly professional educational environment. To that end, both students and faculty are expected to treat each other with mutual regard and civility. Communication, written, oral and behavioral, between faculty and students must remain respectful. Within and outside of the classroom, students must refrain from derogatory comments toward the faculty member and their fellow students, and faculty as well must refrain from derogatory comments toward their students. Faculty and students should address each other with respect, in accordance with the wishes of the faculty and the students: for example, no one should be addressed by their last name alone.

Faculty from the outset of a course can and should specify what constitutes activities and behavior that take away from, that diminish, the educational environment. An individual student's distracting behavior impedes the education of fellow students, which itself is a form of disrespect. Civility and collegiality also include respecting each other's time: for example, neither students nor faculty should arrive late to class (unless unforeseen, pressing circumstances prevail); faculty should be present at the posted office hours; and students and faculty should be punctual when meeting times are scheduled. In more general terms, collegiality means respecting the right of both faculty and students to participate fully and fairly in the educational enterprise.

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 detail, visit <https://floridapoly.edu/writingcenter>