South Plains College

Common Course Syllabus: PHYS 1401

Revised Spring 2025

Department: Science
Discipline: Physics
Course Number: PHYS 1401.001
Course Title: General Physics 1
Available Formats: face to face
Campus: Levelland

Instructor: Dr. Kimberly Bouldin
Office: S70 Levelland campus
Office hours: MW 12:30-1pm, 3:45-4:00pm,
TTh 10-11am & 12:30-1pm, 3:45-4:00pm, **F** 9am-noon
Office phone number: 806-716-2950
Email: KBouldin@southplainscollege.edu

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Course Room: S65
Course Description: Fundamental principles of physics, using algebra and trigonometry; the principles and applications of classical mechanics and thermodynamics, including harmonic motion, mechanical waves and sound, physical systems, Newton's Laws of Motion, and gravitation and other fundamental forces; with emphasis on problem solving.

Pre-requisite: MATH 1316 or consent of instructor.
Credit hours: 4 **Lecture hours:** 3 **Lab hours:** 3

Course Textbook: Physics, 5th Edition by James Walker, required (online access code not required)

Supplies: Students will each need a three-ring binder, a spiral notebook or loose-leaf paper that will fit inside the binder, a notecard or notecards no larger than 3" by 5", a scientific calculator (not a phone), and writing utensils. For any outdoor lab activities, each student may want an outdoor blanket or lawn chair.

This course partially satisfies a Core Curriculum Requirement: Life and Physical Sciences Foundational Component Area (030)

Core Curriculum Objectives addressed:

Communication skills--to include effective written, oral, and visual communication.
Critical Thinking skills--to include creative thinking, innovation, inquiry and analysis, evaluation and synthesis of information.
Empirical and Quantitative skills--to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
Teamwork skills--to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Student Learning Outcomes:
Upon successful completion of this course, students shall be able to:

1. Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.
2. Apply Newton's laws to physical problems including gravity.
3. Solve problems using principles of energy.
4. Use principles of impulse and linear momentum to solve problems.
5. Solve problems in rotational kinematics and dynamics, including the determination of the location of the center of mass and center of rotation for rigid bodies in motion.
6. Solve problems involving rotational and linear motion.
7. Describe the components of a wave and relate those components to mechanical vibrations, sound, and decibel level.
8. Demonstrate an understanding of equilibrium, including the different types of equilibrium.
9. Discuss simple harmonic motion and its application to quantitative problems or qualitative questions.
10. Solve problems using the principles of heat and thermodynamics.
11. Solve basic fluid mechanics problems.
12. Demonstrate techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment.
13. Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written reports.

Student Learning Outcomes Assessment: A pre- and post-test will be used to determine the extent of improvement that the students have gained during the semester.

Breakdown of Grading:

Homework/Lab exercises	10%
Quizzes	10%
Exam 1	25%
Exam 2	25%
Midterm project	25%
Final	5%

Grading scale:

100---A---90, 89---B---80, 79---C---70, 69---D---60, 59---F---0

Note: Final grades will be calculated using the above grade breakdown at the end of the semester.

(**Bonus points** may be given for assignments and activities that are considered above and beyond course requirements. *Students are strongly encouraged to attempt all bonus assignments.* Points for bonus activities will be added onto one quiz grade.)

Attendance Policy:

Attendance in this class will be taken from completed assignments. Everything done face-to-face in class will be recorded and posted on Blackboard. If a student feels ill with symptoms of COVID-19, the student will be required to stay home and complete the assignments for the day at home.

If you are experiencing any of the following symptoms, please do not attend class and either seek medical attention or test for COVID-19.

- Cough, shortness of breath, difficulty breathing
- Fever or chills
- Muscles or body aches
- Vomiting or diarrhea
- New loss of taste and smell

Please also notify DeEtte Edens, BSN, RN, Associate Director of Health & Wellness, at dedens@southplainscollege.edu or 806-716-2376. Proof of a positive test is required. A home test is sufficient but students must submit a photo of the positive result. The date of test must be written on the test result and an ID included in the photo. If tested elsewhere (clinic, pharmacy, etc.), please submit a copy of the doctor's note or email notification. Results may be emailed to DeEtte Edens, BSN, RN at dedens@southplainscollege.edu.

A student is clear to return to class without further assessment from DeEtte Edens, BSN, RN if they have completed the 5-day isolation period, symptoms have improved, and they are without fever for 24 hours without the use of fever-reducing medication.

Students must communicate with DeEtte Edens, BSN, RN prior to their return date if still symptomatic at the end of the 5-day isolation.

You should always check Blackboard before coming to class in order to make sure that class has not been cancelled due to the instructor's illness.

Computer/Software requirements

Minimum Computer Requirements:

1. Personal computer with a 1 GHz Pentium processor and at least 512 MB of RAM memory, a minimum 5 GB of free hard drive, running Windows 7 / MacOS 10.8 or later (Windows 10 / MacOS 10.12 recommended).
2. Web Browser: Google Chrome seems to work the best with Blackboard and HOL.
3. A high speed internet connection of 5+ Mbps.
4. Microsoft Office and Microsoft PowerPoint and Word software (a recent version, preferably 2016 or higher).
5. Windows Media Player (the latest version).
6. Soundcard and functioning speakers.
7. Knowledge of how to navigate Google Chrome web pages and how to deal with pop-up blockers and other devices and warnings on Google Chrome.
8. Knowledge of how to download files from the Google Chrome and find them on your computer once they are downloaded.
9. Knowledge of basic operations of Microsoft Word and Microsoft PowerPoint.
10. Knowledge of how to view and adjust videos with Windows Media Player.

Additional notes on technology:

I will respond to individual emails as quickly as I can. I will always send a reply email when an assignment is sent through email to let the student know that I have received it. If you send me something through email, and you do not receive a response within 2 school days, please resend it. I will always at least touch base with you within a 2-day time period unless I am ill. Also, a student will not be punished in the event that Blackboard or an SPC server is down when an assignment is due. If you need to print, turn something in, or access something online, please try to do so ahead of time and not at the last minute in order to avoid this situation.

For information regarding official South Plains College statements about intellectual exchange, disabilities, non-discrimination, Title IX Pregnancy Accommodations, CARE Team, and Campus Concealed Carry, please visit https://www.southplainscollege.edu/syllabusstatements/.

PHYS 1401 General Physics 1 Tentative Weekly Schedule Spring 2025

Week 1 Jan 13, 15 Introduction (Get textbook, read Ch 1) Lecture- Ch 1, Lab 1- Measurements and Units, Measuring Up HW Ch 1 **(All HW assignments are listed in that chapter's lecture notes, due one week after assignment)**	Week 9 March 10, 12 Lecture- Ch 9, Lab 9-Momentum HW Ch 9 Watch Flatland video *(Spring Break March 17-21)*
Week 2 Jan 22 (Jan 20 MLK Day, Campus closed) Lecture- Ch 2, Lab 2-Distance-Velcity-Acceleration, How Do Your Rate? HW Ch 2	Week 10 March 24, 26 Lecture- Ch 10, Lab 10-Archimedes Principle/Hot Air Balloons HW Ch 10
Week 3 Jan 27, 29 Lecture-Ch 3, Lab 3- Vector Voyage/1D Rocket HW Ch 3 **Quiz 1 over Ch 1 & 2 on Jan 31**	Week 11 March 31, April 2 Lecture- Ch 11, Lab 11- Rotational Motion HW Ch 11 Review for Exam 2
Week 4 Feb 3, 5 Lecture- Ch 4, Lab 4- 2D Projectile motion HW Ch 4 Draw Midterm Project topics Discuss Midterm rubric	Week 12 April 7, 9 **Exam 2 over Ch 6-10 on April 7** Lecture- Ch 12-18 select topics and demos, Lab 13- Bernoulli's Principle No HW
Week 5 Feb 10, 12 Lecture- Ch 5, Lab 5- Forces HW Ch 5 Watch Math Mysteries video Review for Exam 1	Week 13 April 14, 16 **Student midterm presentations Day 1 April 14** (Note: All midterm papers are due April 14 at the beginning of class.) **Student midterm presentations Day 2 April 16**
Week 6 Feb 17, 19 Lecture- Ch 6, Lab 6- Simple Harmonic Motion/Spring Constant **Exam 1 over Ch 1-5 on Feb 17** HW Ch 6	Week 14 April 21, 23 **Student midterm presentations Day 3 April 21** **Quiz 2 over Midterm Presentations on April 23**
Week 7 Feb 24, 26 Lecture- Ch 7, Lab 7- Work/Energy Thm, Egg Drop Contest HW Ch 7	Week 15 April 28, 30 Review for Final Exam **All HW and Bonus Projects are due on April 30** Select demos, Lab 14- student designed
Week 8 March 3, 5 Lecture- Ch 8, Lab 8- Conservation of Energy/Marble coasters HW Ch 8	**The final exam will be in class on Monday, May 5 from 1-3pm.**