

South Plains College
Common Course Syllabus: PHYS 1401
Revised Spring 2022

Department: Science
Discipline: Physics
Course Number: PHYS 1401.200
Course Title: General Physics 1
Available Formats: face to face
Campus: Reese

Instructor: Dr. Kimberly Bouldin
Office: S70 Levelland campus, R228 Reese campus
Office hours: MW 12:30-1pm (Levelland), 2-2:30 (Reese),
TTh 10-11am & 12:30-1pm (Levelland), F 9am-noon (Levelland)

Office phone number: 806-716-2950
Email: KBouldin@southplainscollege.edu

SOUTH PLAINS COLLEGE IMPROVES EACH STUDENT'S LIFE.

Course Room: R226

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 ANY 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 get tested for COVID-19. • Cough, shortness of breath, difficulty breathing • Fever or chills • Muscle or body aches • Vomiting or diarrhea • New loss of taste and smell

- *Consistent with the latest CDC recommendations, we have revised our guidance for students, faculty, and staff who have a known exposure or have tested positive. Anyone with a known exposure should wear a mask for 10 days and should seek a COVID-19 test on day five after exposure. If you test positive or develop symptoms, you should immediately self-isolate and seek a COVID-19 test. Please immediately notify your instructor, supervisor, and DeEtte Edens, Associate Director of Health and Wellness, any time you test positive for COVID-19. Anyone who tests positive is required to self-isolate for five days. Following the five-day isolation period, if you are asymptomatic or your symptoms are resolving, you may return to work or class but should wear a mask for five additional days. If you are still symptomatic, please contact DeEtte Edens at dedens@southplainscollege.edu or 806-716-2376 prior to your return date.*

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.

Academic Integrity

It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. Classroom behavior that is not conducive to learning will be dealt with according to the guidelines set forth on the South Plains College Catalog. The attempt of any student to present as his or her own work which he or she has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension.

Student Code of Conduct Policy: Any successful learning experience requires mutual respect on the part of the student and the instructor. Neither instructor nor student should be subject to others' behavior that is rude, disruptive, intimidating, aggressive, or demeaning. Student conduct that disrupts the learning process or is deemed disrespectful or threatening shall not be tolerated and may lead to disciplinary action and/or removal from class.

Diversity Statement

In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Disabilities Statement

Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

Non-Discrimination Policy

South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

Title IX Pregnancy Accommodations Statement

If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To activate accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness. Once approved, notification will be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact the Director of Health and Wellness at 806-716-2362 or email rcanon@southplainscollege.edu for assistance.

Campus Concealed Carry Statement

Texas Government Code 411.2031 et al. authorizes the carrying of a concealed handgun in South Plains College buildings by individuals and in accordance with Texas Government Code 411.209 (a). All holders of a valid Texas License to Carry may carry on their person a handgun that is concealed in accordance with Texas Penal Code 46.03 (a-2).

Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy. Individuals may not carry a concealed handgun in restricted locations.

For a list of locations and Frequently Asked Questions, please refer to the Campus Carry page at: <http://www.southplainscollege.edu/campuscarry.php>

Report violations to the College Police Department at 806-716-2396 or 9-1-1.

PHYS 1401 General Physics 1 Tentative Weekly Schedule Spring 2022

<p>Week 1 Jan 19 Introduction (Get textbook, read Ch 1) Lecture- Ch 1, Lab 1- Measurements and Units, Measuring Up (may be continued Week 2) HW Ch 1 (All HW assignments are listed in that chapter's lecture notes, due one week after assignment)</p>	<p>Week 9 March 21, March 23 (Spring Break March 14-18) Lecture- Ch 9, Lab 9-Momentum HW Ch 9 Watch Flatland video</p>
<p>Week 2 Jan 24, Jan 26 Lecture- Ch 2, Lab 2-Distance-Velocity-Acceleration, How Do Your Rate? HW Ch 2 Draw Midterm Project topics Discuss Midterm rubric</p>	<p>Week 10 March 28, March 30 Lecture- Ch 10, Lab 10-Archimedes Principle/Hot Air Balloons HW Ch 10</p>
<p>Week 3 Jan 31, Feb 2 Lecture- Ch 3, Lab 3- Vector Voyage/1D Rocket HW Ch 3 Quiz 1 over Ch 1 & 2 on Feb 2</p>	<p>Week 11 April 4, April 6 Lecture- Ch 11, Lab 11- Rotational Motion HW Ch 11 Review for Exam 2</p>
<p>Week 4 Feb 7, Feb 9 Lecture- Ch 4, Lab 4- 2D Projectile motion HW Ch 4</p>	<p>Week 12 April 11, April 13 Exam 2 over Ch 6-10 on April 11 Student midterm presentations April 13 (All midterm papers are due by April 13)</p>
<p>Week 5 Feb 14, Feb 16 Lecture- Ch 5, Lab 5- Forces HW Ch 5 Watch Math Mysteries video Review for Exam 1</p>	<p>Week 13 April 18, April 20 Student midterm presentations cont.</p>
<p>Week 6 Feb 21, Feb 23 Lecture- Ch 6, Lab 6- Simple Harmonic Motion/Spring Constant Exam 1 over Ch 1-5 on Feb 21 HW Ch 6</p>	<p>Week 14 April 25, April 27 Quiz 2 over Midterm Presentations on April 25 Lecture- Ch 12-18 select topics and demos, Lab 13- Bernoulli's Principle No HW</p>
<p>Week 7 Feb 28, March 2 Lecture- Ch 7, Lab 7- Work/Energy Thm, Egg Drop Contest HW Ch 7</p>	<p>Week 15 May 2, May 4 Review for Final Exam All HW and Bonus Projects are due on May 4 Select demos, Lab 14- student designed</p>
<p>Week 8 March 7, March 9 Lecture- Ch 8, Lab 8- Conservation of Energy/Marble coasters HW Ch 8</p>	<p>A final exam will be posted online on Blackboard on Monday, May 9 by 8 am and will be due by midnight on May 9.</p>