

**THE UNIVERSITY OF TEXAS AT EL PASO
COLLEGE OF SCIENCE
DEPARTMENT OF PHYSICS**

Course #:	PHYS 1403 CRN 20946
Course Title:	General Physics I
Credit Hrs:	4.0
Term:	Spring 2019
Course Meetings & Location:	Tue Thu 9:00AM – 10:20 PM, Liberal Arts 107
Instructor:	Dr. José Leo Bañuelos
Office Location:	PSCI 215C
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Emergency Contact:	(915) 747 5715
Office Hrs:	Tue 10:30 am – 12:30 pm and by appointment
Textbook(s), Materials:	Main textbook: <i>College Physics a strategic approach</i> by Knight, Jones, and Field (Third Edition). See details on p.2

Course Objectives (Learning Outcomes):

The objective of PHYS 1403, which is the first part of a sequence of two algebra-based introductory physics courses, is to provide students with a rigorous description of physical phenomena and to improve students' problem-solving abilities. We will study the following topics: Representing Motion, Vectors in Physics, One- and Two-Dimensional Kinematics, Forces, Newton's Laws of Motion, Work and Energy, Potential Energy and Conservative Forces, Energy Conservation, Linear Momentum and Collisions, Rotational Kinematics, Rotational Dynamics, Mechanical Equilibrium, and Equilibrium and Elasticity.

Grading Policy:

Grades in this course will be based on your scores on two midterm exams, a final exam (comprehensive; but with emphasis on the last part of the course), laboratory, homework assignments, and in-class participation.

Midterm exams:	40% (20% each)
Final exam:	20% (comprehensive)
Laboratory:	15%
In-Class participation	5%
Homework/Quizzes:	20%

Course Activities/Assignments:

1. Homework

It is essential you develop good problem solving methods: this includes developing writing skills to set up a problem, including diagrams and mathematical manipulation to achieve the final answer. A numerical score will be assigned for each homework set. **Please do not fall behind because future material generally depends on previous material. Seek help immediately.** Please form study groups with your classmates and seek help from the lecture professor and any TA during his/her office hours as you attempt to solve problems. Attend the tutoring sessions

offered for this course (schedule to be posted on Blackboard). Make sure that you understand the solutions and write them up yourself!

Tutoring: The Miner Learning Center has a tutor available for this specific class. Please take advantage of this opportunity and attend tutoring sessions. Tutoring schedule will be provided early in the semester.

REGISTER FOR ONLINE HOMEWORK BY FOLLOWING INSTRUCTIONS: *Pearson Student_Registration_Handout_SP2019_banuelos13779.pdf* in the “Instructions, Guides, Resources” link on your Blackboard Home Page

There are several online homework access options:

- 1. Provide the access code given to you when you purchased the textbook.**
- 2. Purchase the electronic text (e-text) plus 3e Tech update.**
- 3. Purchase the 3e Tech update only.**

I recommend option 2. EACH STUDENT WILL NEED HIS/HER OWN ONLINE ACCESS PACKAGE FOR THE HOMEWORK AS THE **BARE MINIMUM PURCHASE** (option3) FOR THIS COURSE.

Homework is announced in advance in the lecture and via email (approximately every week). Each will consist of problems based on the course material as well as an extra credit Adaptive Follow-Up exercise for those scoring less than 85%.

2. In-class Participation

You are required to install the iClicker Reef Student App which is a device polling system that will be used during each lecture to answer questions in class and record your in-class participation. Download iClicker Reef and create a new account if you do not already have one. Search for my iClicker course: **PHYS 1403 CRN 20946 SPRING 2019**.

Your participation in **iClicker REEF** polling sessions each lecture will be used to monitor your attendance in this semester’s course (**worth 5% of your grade**). Make sure your mobile device (laptop, cell phone, etc) is charged **BEFORE** coming to class.

Short quizzes will be given occasionally in class, or assigned to be completed online before class. These will be based on pre-class assigned reading or short videos. If not announced in the previous session, these may be announced via email so please check your email often.

3. Exams

Exams will consist of problems very similar to the worked example problems in the text and the assigned homework problems. Exams will be closed-book unless I state otherwise. You should bring with you a pocket calculator to work out the answers to numerical problems: **make sure the battery is charged**. Cell phone use is **NOT ALLOWED** during the exams!

Dates of the midterm exams will be announced in class ahead of time. **The final exam will take place Tuesday, May 14th from 10:00am-12:45pm in LA104**. For information regarding UTEP’s final exam policy visit the link: <https://www.utep.edu/student-affairs/registrar/Internal/Links/Final%20Exam%20Schedule%20Spring%202019.pdf>

The best way to prepare for the exams is to study the example problems, work out the assigned homework problems regularly, and complete any revision guides given to you. You should work as many additional problems from the text as you can: this is the best way to ensure your understanding of the material.

Make-up Policy:

An extension of the due date for the homework as well as the make-up of missing exams will be granted only in extraordinary circumstances. Late homework will be penalized at a rate of 8% of the maximum score for each day it is late.

Attendance Policy: No credit will be granted for just attending the class. You are expected to arrive to class on time, and participate in all problem-solving exercises.

Academic Integrity Policy:

A fundamental principle for any educational institution, academic integrity is highly valued and seriously regarded at The University of Texas at El Paso. More specifically, students are expected to maintain absolute integrity and a high standard of individual honor in scholastic work undertaken at the University.

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

Please see: <https://www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html> for more information and the UTEP Handbook of Operating Procedures: <https://www.utep.edu/vpba/hoop/>

Civility Statement:

Cell phones and pagers should be turned off during class time.

When absences occur, it is your responsibility to obtain handouts and notes from your peers. When possible you will complete the activities you have missed.

Academic integrity is to be practiced at all times.

Disability Statement:

If you have a disability and need classroom accommodations, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East Building, Room 106. For additional information, please visit the CASS website at <https://www.utep.edu/student-affairs/cass/>. The student is responsible for presenting to the instructor any accommodation letters and instructions.

Military Statement:

If you are a military student with the potential of being called to military service and/or training during the course of the semester, you are encouraged to contact the instructor at the beginning of the semester.

Course Schedule:

CHAPTER 1 - REPRESENTING MOTION (Aug 28 - 30)

1. Motion: A First Look. **2.** Position and Time: Putting Numbers on Nature **3.** Velocity

4. A sense of Scale: Significant Figures, Scientific Notation, and Units 5. Vectors and Motion: A First Look 6. Where Do We Go From Here?

CHAPTER 2 - MOTION IN ONE DIMENSION (Sep 04 - 11)

1.Describing Motion 2.Uniform Motion 3.Instantaneous Velocity 4.Acceleration 5.Motion with Constant Acceleration 6.Solving One-Dimensional Motion Problems 7.Free Fall

CHAPTER 3 - VECTORS AND MOTION IN TWO DIMENSIONS (Sep 13 - 18)

1.Using Vectors 2.Using Vectors on Motion Diagrams 3.Coordinate Systems and Vector Components 4.Motion on a Ramp 5.Relative Motion 6.Motion in Two Dimensions: Projectile Motion 7.Projectile Motion: Solving Problems 8.Motion in Two Dimensions: Circular Motion

CHAPTER 4 – FORCES AND NEWTON’S LAWS OF MOTION (Sep 20 - 25)

1.Motion and Forces 2.A Short Catalog of Forces 3.Identifying Forces 4. What Do Forces Do? 5.Newton’s Second Law 6.Free-Body Diagrams 7.Newton’s Third Law

CHAPTER 5 – APPLYING NEWTON’S LAWS (Sep 27 - Oct 04)

1.Equilibrium 2.Dynamics and Newton’s Second Law 3.Mass and Weight 4.Normal Forces 5.Friction 6.Drag 7.Interacting Objects 8.Ropes and Pulleys

CHAPTER 6 – CIRCULAR MOTION, ORBITS, AND GRAVITY (Oct 16 - 23)

1.Uniform Circular Motion 2.Dynamics and Uniform Circular Motion 3.Apparent Forces in Circular Motion 4.Circular Orbits and Weightlessness 5.Newton’s Law of Gravity 6.Gravity and Orbits

CHAPTER 7 – ROTATIONAL MOTION (Oct 25-30)

1.Describing Circular and Rotational Motion 2.The Rotation of a Rigid Body 3.Torque 4.Gravitational Torque and the Center of Gravity 5.Rotational Dynamics and Moment of Inertia 6.Using Newton’s Second Law for Rotation 7.Rolling Motion

CHAPTER 8 – EQUILIBRIUM AND ELASTICITY (Nov 1 - 6)

1.Torque and Static Equilibrium 2.Stability and Balance 3.Springs and Hook’s Law 4.Stretching and Compressing Materials

CHAPTER 9 – MOMENTUM (Nov 15 - 20)

1.Impulse 2.Momentum and the Impulse-Momentum Theorem 3.Solving Impulse and Momentum Problems 4.Conservation of Momentum 5.Inelastic Collisions 6.Momentum and Collisions in Two Dimensions 7.Angular Momentum

CHAPTER 10 – ENERGY AND WORK (Nov 27 – Dec 4)

1.The Basic Energy Model 2. Work 3. Kinetic Energy 4. Potential Energy 5. Using the Law of Conservation of Energy 6. Energy in Collisions 7. Power

CHAPTER 11 – USING ENERGY (Dec 6) - Special topics on the subject & review.