

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

Course #:	PHYS 1403 CRN 11171
Course Title:	General Physics I
Credit Hrs:	4.0
Term:	Fall 2017
Course Meetings & Location:	Tue Thu 3:00 – 4:20 PM, College of Business Admin. rm323
Instructor:	Dr. José Leo Bañuelos
Office Location:	PSCI 215C
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Office Hrs:	Tue 1:00 pm – 2:30 pm and by appointment
Textbook(s), Materials:	Main textbook: <i>College Physics a strategic approach</i> by Knight, Jones, and Field (Third Edition).

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 that students become well versed in problem solving methods, which means developing the 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 based on graded and counted problems. Please form study groups with your

classmates and seek help from the lecture professor and any TA during his or her office hours as you attempt to solve the problems.

Make sure that you understand the solutions and write them up yourself!

REGISTER FOR ONLINE HOMEWORK BY FOLLOWING INSTRUCTIONS:

Pearson Registration Instructions PHYS1403 Banuelos FALL 2017 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.**

EACH STUDENT WILL NEED HIS/HER OWN ONLINE ACCESS PACKAGE FOR THE HOMEWORK AS THE BARE MINIMUM PURCHASE FOR THIS COURSE.

Homework will be announced in advance in the lecture (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. Follow the *iClicker REEF* link under “**Instructions, Guides, Resources**” on your Blackboard Home Page for this course. You will be taken to the REEF Education site and prompted to create a new account if you do not already have one. You should automatically be taken to my iClicker course: **PHYS 1403 CRN 11171 FALL 2017**. You will also have the option to install the iClicker Reef Student App onto your mobile device.

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 is scheduled to take place Thursday 12/14/2017 from 4:00 pm – 6:45 pm according to the UTEP Fall 2017 Final Examination Schedule:

<http://academics.utep.edu/Portals/382/201720/Final%20Examination%20Schedule%20Fall%202017.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.

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: <http://sa.utep.edu/osccr/academic-integrity/> for more information and the UTEP Handbook of Operating Procedures: <http://admin.utep.edu/Default.aspx?tabid=73922>

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 <http://sa.utep.edu/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 29-31)

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 05-12)

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 14-19)

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 21-26)

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 28-Oct-05)

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 17-24)

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 26-31)

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 2-7)

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

CHAPTER 9 – MOMENTUM (Nov 16-21)

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 28-Dec 5)

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 5-7) - Special topics on the subject.