

UNIVERSITY of HOUSTON

DEPARTMENT OF PHYSICS

COURSE TITLE/SECTION: Physics 1321 University Physics I/Class Number #####

TIME: Time and Days

LOCATION: Online only

FACULTY: Instructor name

OFFICE HOURS: Scheduled times and connection info

E-mail: Instructor email

Phone: (713) 743-####

Physics 1321 University Physics I

Catalog Description: First semester of a two-part calculus-based course covering mechanics of one- and two-dimensional motion, dynamics, energy, momentum, rotational dynamics and kinematics, statics, gravity, oscillations, waves and fluids.

Primarily for science and engineering majors. Credit may not be applied toward degree for both Phys 1321 and Phys 1301.

Prerequisites: Credit for or concurrent enrollment in Math 1432

Course Structure:

Computer and internet access are required for this course.

For the current list of minimum technology requirements and resources, see <http://www.uh.edu/online/tech/requirements>. For additional information, contact the office of Online & Special Programs at UHOnline@uh.edu or 713-743-3327.

Blackboard, Mastering Physics, Microsoft Teams and possibly other online resources will be required for this course. Students may also be required to send scans of paper documents (i.e. using a smart phone with camera or scanner). See <https://uh.edu/online/students/remote-learning/> for more information on remote learning tools.

Mastering Physics course ID, Teams connection information, and other relevant information specific to your course here.

Textbook: *University Physics with Modern Physics, 15th edition*, Young and Freedman. If you purchase the textbook from the UH bookstore, it will include an access code for Mastering Physics. You can also purchase a standalone access code for Mastering Physics from the UH bookstore or directly from the publisher (Pearson).

Course Requirements:

- A. **(OPTIONAL) Warm up Assignments:** Reading quizzes covering the material from the reading assignment, consisting of 2-3 questions/problems, will be assigned online. The quizzes will be available at least 24 hours before they are due, and they will be due by the beginning of the lecture time. There will be a time limit for taking the quiz and you

will be allowed 2 attempts for each quiz. Solutions for the quizzes will be discussed during the lecture and will be posted on the class website.

- B. **Homework Assignments:** Homework will be completed online using Mastering Physics. Ten or more homework problems will be assigned at the beginning of each chapter and will be due approximately one week from that date.
- C. **Diagnostic Exam:** The required diagnostic exam for this course will test your basic mathematical skills in algebra, geometry, trigonometry, calculus, and word problem solving. The exam consists of 20 multiple choice questions. The exam will be administered online by the CASA Testing Center **August 24 – September 3**. You can log onto the CASA website <http://casa.uh.edu> to register for the test. The diagnostic exam is worth 3% of your final grade for the course. If you score above 70%, you should be well prepared to pass the course; 51 - 70%, you should review algebra, trigonometry and pre-calculus; 50% and below, you should consider dropping the course or re-enrolling once you have improved your math and problem solving skills.
- D. **My Readiness Test Math Tutorial:** If you wish to improve your math skills, you can complete a math tutorial which has been set up by the Department of Physics. The math tutorial course is set up through My Readiness Test, an online math tutorial offered by the publisher of the textbook for the course. If you purchased a textbook from the UH Bookstore, you will receive a free access code to My Readiness Test. If you did not purchase your textbook through the UH bookstore, you can purchase a code for My Readiness Test for \$15 during the registration process. See <https://uh.edu/nsm/physics/undergraduate/intro-course-info/> for information on how to register and access the math tutorial through My Readiness Test.
- E. **Exams:** Exams will be given online. There will be three regular exams. Regular exams will cover 3-5 chapters each. There will also be a longer final exam which will be comprehensive, covering all the material in the course. You may be required to turn in your work for each exam (via scanning or photographing it). You may also be required to use online monitoring software during exams. (More specific information on exams can be added later.)
- F. **Teamwork Component:** A teamwork component will be evaluated in this course. This is a required component of the course. Choose one of these examples or use some other form of teamwork.
 - a. Concept tests will be administered during lecture. Students will discuss these questions in teams as a method of peer instruction. (For this to count as teamwork, students would have to work in groups using the “breakout room” features in Teams or Zoom.)
 - b. Teams consisting will be assigned to create a study guide for each of the exams for the course. The study guides will be posted in Blackboard and students will be able to choose the study guide which is best for use to prepare for the exam. Each group will have to work together to determine what will be included on the study guide and the best format for presenting it to the students.
 - c. Other?

Grading:

3% Diagnostic Exam

5% Teamwork

12% Discretionary – Could count for reading quizzes, more towards exams, etc. However, this percentage cannot be put towards Homework)

10% Homework

17% Regular Exam I

- 17% Regular Exam II
- 17% Regular Exam III
- 19% Final Exam

Course Objectives:

The objective of this course is to learn the principles of mechanics through application of Newton's laws, understand the concept of energy and be able to apply these concepts to describe the motion of objects.

Upon completion of this course, students will be able to:

1. master the physical concepts of force and energy;
2. be able to apply these to obtain solutions to technical problems;
3. use this scientific foundation to continue studies in more advanced courses in science and engineering.

Other learning outcomes include:

1. Students completing this course will be able to convey knowledge of the principles of physics and be able to use these principles to solve problems.
2. Students will be able to take a real-life problem and use physical principles and mathematical tools to describe the problem.

Course Content:

This course will cover Chapters 1-16 which include the following topical areas:

1. Vectors
2. Newtonian Mechanics: Motion in 1-D, 2-D and 3-D
3. Newton's Laws: Force and Motion
4. Work and Energy
5. Momentum and Collisions
6. Systems of Particles
7. Circular Motion
8. Rotational of Rigid Bodies
9. Gravitation
10. Solids and Fluids
11. Oscillations
12. Waves and Sound

Tutoring and Additional Resources: See <https://uh.edu/nsm/physics/undergraduate/intro-course-info/>.

Policy on grades of I (Incomplete): The temporary grade of I (incomplete) is a conditional and temporary grade given when students (a) are currently passing a course or (b) still have a reasonable chance of passing in the judgment of the instructor, but for non-academic reasons beyond their control have not completed a relatively small part of all requirements. Incompletes will be given only when documentation has been submitted to support the need to receive an incomplete, i.e., medical statements.

Addendum: Whenever possible, and in accordance with 504/ADA guidelines, the University of Houston will attempt to provide reasonable academic accommodations to students who request and require them. Please call 713-743-5400 for more assistance.

Academic Honesty: It is each student's responsibility to read and understand the Academic Honesty Policy found at <http://catalog.uh.edu/content.php?catoid=34&navoid=12627>.

Religious Holy Days: Students whose religious beliefs prohibit class attendance or the completion of specific assignments on designated dates may obtain an excused absence. To do so, please make a written request for an excused absence and submit it to your instructor as soon as possible, to allow the instructor to make arrangements. For more information, see: <http://catalog.uh.edu/content.php?catoid=34&navoid=12495>

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS (www.uh.edu/caps) by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. Also, there is no appointment necessary for the "Let's Talk" program, which is a drop-in consultation service at convenient locations and hours around campus. <https://uh.edu/caps/outreach/lets-talk/>.

Standard Disclaimer: This syllabus is subject to change at the discretion of the instructor.