



COURSE TITLE/SECTION: Physics 1301 Introductory General Physics I, Fall 2018/14852

TIME: MWF 12-1pm

LOCATION: SR1 116

FACULTY: Dr. Rebecca Forrest **OFFICE HOURS:** SR1 515C, M 2–3, T 2:30-3:30, W&F 9-10 am
or by appointment, SR1 515C

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I. Course: Physics 1301 - Introductory General Physics I

A. Catalog Description: Elementary principles of mechanics and heat.

B. Prerequisites: [MATH 1330](#). Primarily for majors other than physics, mathematics, and engineering. Credit may not be applied toward a degree for both [PHYS 1301](#) and University Physics I, [PHYS 1321](#).

II. 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. comprehend the fundamental principles in mechanics.
2. use the formalisms of the theory and mathematical techniques to solve problems. This involves application, analysis, and synthesis of the fundamental principles.

Other learning outcomes include:

1. Students completing this course will be able to convey knowledge of the basics principles of physics and be able to use these principles to solve elementary problems.
2. Students will be able to take a real life problem and use physical principles and basic mathematical tools to describe the problem.
3. Student will have the ability to communicate orally and in writing in a clear concise manner the concepts of Physics.

III. Course Content: This course will cover chapter 1 – 15 which include the following topical areas:

1. Vector in Physics
2. Newtonian Mechanics: Motion in 1-D and 2-D
3. Work and Energy
4. Momentum and Collisions
5. Rotational Kinematics, Dynamics and Energy
6. Gravity
7. Oscillations about Equilibrium
8. Waves and Sound
9. Fluids

IV. Course Structure:

Dr. Forrest's web address is <http://www.phys.uh.edu/~rforrest/>.

This course uses Blackboard, <http://www.uh.edu/blackboard/>.

This course uses the Pearson Mastering Physics online homework system, see below.

V. Textbooks

Homework problems will be assigned through the Pearson Mastering online homework system for the textbook: ***Physics, Fifth Edition, James S. Walker***. Access to some edition of the textbook, either paper or online, is required. Binder version with access code to Mastering Physics and My Readiness Test available at the UH bookstore. See the course website for more options for purchasing the textbook. You should read the material to be covered in class before coming to class.

VI. Course Requirements

A. Photos of Physics Assignments: The objective of the Photos of Physics assignment is for students to observe "real world" events that relate to their studies in class. For each assignment, students will take original photos related to or explained by certain physics principles and upload them to the Photos of Physics Discussion Board on Blackboard. The chapters will be grouped, by exam, into 3 groups. All students will be responsible for posting 2 physics photos for each chapter group, with a 10 - 50 word explanation of how it relates to the physics concepts studied. Students may take photos with their cell phone, camera, tablets, etc. While the assignment is worth 2 points, you may earn up to 3 points; 1 point each for the 2 required photos with explanation, and 1 point extra credit for 1 extra photo with explanation. The Instructor may discuss selected photos and concepts during the lecture. Photo posts must be completed by the posted due date.

B. Written Assignments(See **Pearson Mastering Physics** for HW assignments) 10 or more **homework** problems will be assigned at the beginning of each chapter and will be due approximately one week from that date. Late homework is only accepted with a valid excuse. (www.pearsonmastering.com)

C. Exams: There will be one **diagnostic exam**, three **regular exams** and a **final exam** for a total of five exams for the class. The **required diagnostic exam** for this course will test your basic mathematical skills in algebra, geometry, trigonometry and word problem solving. The exam consists of 20 multiple choice questions. It is a one hour exam and no calculators are allowed. The exam will be administered by CASA Testing Center **August 20th – September 5th**. You can log onto the CASA website to make a reservation at <http://casa.uh.edu> or you may go to room 222 Garrison Gym. You will be able to reserve a spot to take the exam approximately one week before the exam opens.

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.

If you score below 70% on the diagnostic exam, you can take a math tutorial to increase your diagnostic exam score to 70% but no greater. You must complete all tutorial subtests as well as the final test with a score of 75% or greater.

OR

If you just 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 ReadinessTest. If you did not purchase your textbook through the UH bookstore, you can purchase a code for My Readiness test for \$15 through the publisher's website listed below.

http://www.myreadinesstest.com/support/mpt/contactus_stu.htm

See the Department of Physics website under the Resources tab (<http://www.uh.edu/nsm/physics/resources/>) for access to the file "MyReadiness Fall 2017 Phys 1301 Math Tutorial" which gives the information on how to register and access the math tutorial through My Readiness Test or use the link below.

http://www.uh.edu/nsm/_docs/phys/resources/How%20to%20Register%20and%20Enroll%20in%20Math%20Tutorial%20Program_1301_F17.pdf

Statistics: A study on 643 student enrolled in Phys 1301 at UH showed that of the students who scored below 65% on the diagnostic exam, students who successfully completed the math tutorial had 4 times better odds of passing the class. These statistics show that it may be your advantage to complete the math tutorial to increase your chances of passing the course.

The **regular exams** will be given at CASA and the date of each exam will be announced one week in advance. They will cover 3-5 chapters and will consist of 10-20 multiple choice questions. You will be required to sign up for an exam time through the CASA website. Each regular exam will be worth 15% of your final grade for a total of 45% for the three regular exams.

The **final exam** will be comprehensive covering all chapters covered for the course. The format of the final exam will be similar to that of a regular exam but the final will be given **IN A CLASSROOM** during the University Departmental Exam scheduled time.

For all regular and the final exam you may use a basic scientific calculator for example a TI-30. No graphing/programmable calculators are allowed. A formula sheet will be provided with all necessary formulas needed to solve the problems.

There are no makeup exams for this course. The lowest exam score will be replaced by the final exam score if the final exam score is higher.

- D. Student Success Program/Recitation Sessions:** This section has been selected to participate in a program supported by a Howard Hughes Medical Institute (HHMI) grant. Because of this, the course will include recitation study groups. This program will provide early assistance to students who are having academic difficulties in the course and will provide worthwhile enrichment opportunities for students who are on-track. Students will be asked to fill out a FERPA release form and answer questionnaires

online during the course. Students will receive extra credit points towards their homework grade for completing online surveys. In order to receive the points students will need to enter their PeopleSoft ID # in the survey.

Recitation sessions are held for one hour each week and begin the third week of classes; all students are invited to attend. You will receive information about the recitation schedule, and signing up for a time. These sessions provide the opportunity to participate in problem-solving activities designed to enhance your understanding and mastery of the course content.

Any student scoring below 70% on the Diagnostic Exam MUST attend one recitation each week for the remainder of the semester. For these students, recitations will count for 50% of the Teamwork/Attendance component grade. Recitation attendance will be graded as the percentage of required recitation sessions attended. Students must arrive on time, stay for the entire session, and record their attendance.

- E. Teamwork Component/Attendance: Demonstrations:** You will be completing worksheets during in-class demonstrations, in groups of 2-5 students. These will be collected and graded based on completeness, not correctness. Worksheets with only one name will receive 0 credit. Worksheets should be printed from Blackboard and brought to class. Print two, one to turn in and one to keep.

VII. Evaluation and Grading

- 3% Diagnostic Exam**
- 10% Teamwork / Attendance**
- 6% Photos of Physics**
- 10% Homework**
- 15% Regular Exam I**
- 15% Regular Exam II**
- 15% Regular Exam III**
- 26% Final Exam (Saturday, Dec 8th, 8 – 11 am IN AN ASSIGNED CLASSROOM)**

Policy on grades of I (Incomplete): The grade of "I" (Incomplete) is a conditional and temporary grade given when a student, for reasons beyond his or her control, has not completed a relatively small portion of all requirements. Sufficiently serious, documented situations include illness, death in the family, etc.

VIII. Consultation

My office is located in room 515C of Science and Research #1. My mailbox is located in the Physic office, room 617 in Science and Research # 1. My office hours are listed above. If you cannot see me during those times, you may schedule an appointment with me by e-mailing me at rforrest@uh.edu. For information about tutoring see <http://www.uh.edu/nsm/physics/undergraduate/tutoring/>.

IX. Bibliography

References: Physics, Algebra/Trig, Eugene Hecht; Fundamentals of Physics, Halliday, Resnick, and Walker; The Feynman Lectures on Physics, R. Feynman, R.B. Leighton, and M. Sands

X. Tutoring

Students can take advantage of tutoring through the following:

Physics Learning Center - <http://www.uh.edu/nsm/physics/undergraduate/tutoring/>

Tutor List - <http://www.uh.edu/nsm/physics/resources/>

LAUNCH - www.uh.edu/ussc/launch

At LAUNCH, students can:

- Drop in for individual **Peer Tutoring** on over 100 different courses—no appointment necessary! LAUNCH is located in Cougar Village 1, room N109. <http://www.uh.edu/ussc/launch/index.php>.
- Attend a **Success Workshop**: <http://www.uh.edu/ussc/launch/index.php>.
- Set up an individual appointment with an **Academic Counselor**: **713-743-5411**

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=6&navoid=1025>.

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 the Student Handbook.

<http://catalog.uh.edu/content.php?catoid=4&navoid=791>.

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. http://www.uh.edu/caps/outreach/lets_talk.html.

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