



The **descriptions and timelines** on this syllabus are subject to change at the discretion of the Professor.

### Course Information

Course Number/Section	PHYS 1301.501
Course Title	College Physics I
Term	Fall 2024
Days & Times	Tuesday & Thursday 5:30 PM – 6:45 PM
Room	<b>In person</b> SCI 1.220

### Instructor Contact Information

Instructor	Dr. Alexandre Goncalves Pinheiro
E-mail	<a href="mailto:agp240000@utdallas.edu">agp240000@utdallas.edu</a>



Folder link (QR) with the materials of this course:

[https://cometmail-my.sharepoint.com/:f/g/personal/agp240000\\_utdallas\\_edu/Es9ZrAiiq2pOlyzwe\\_ONBvgBjFamIE1b\\_0u\\_K\\_oxQNnFsg?e=02egL9](https://cometmail-my.sharepoint.com/:f/g/personal/agp240000_utdallas_edu/Es9ZrAiiq2pOlyzwe_ONBvgBjFamIE1b_0u_K_oxQNnFsg?e=02egL9)

### TA(s) Contact Information

Sean Smith  
[sss190016@utdallas.edu](mailto:sss190016@utdallas.edu)

### TA(s) Office Hours

Office hour: 2:30-3:30pm on M/W at SCI B.179

### University supported Tutoring:

Through the Student Success Center <http://studentsuccess.utdallas.edu/>

### Course Pre-requisites, Co-requisites, and/or Other Restrictions

Prerequisites: MATH 1314 (College Algebra) or equivalent. Corequisite: PHYS 1101. Familiarity with basic mathematics (including algebra, geometry, and trigonometry) is assumed.

### Course Description

3 Credit Hours. Algebra based. An introductory course on the fundamentals of physics including a study of space and time, kinematics, forces, energy and momentum, conservation laws, periodic motion, waves and thermodynamics.

### Student Learning Objectives/Outcomes

Upon completing this course, students will:

- Be able to compute the sum, scalar multiplication, and vector multiplication of vectors
- Be able to analyze and explain the components of linear and rotational motion (displacement, velocity, acceleration) including graphs and their interrelationships
- Be able to apply different forces and work force problems including the fundamental force of gravity and Newton's laws
- Be able to classify the different forms of energy and use the conservation of energy to work problems
- Be able to define momentum and collisions
- Be able to give examples of rotational variables and the relationship between linear and rotational variables
- Explain simple harmonic motion and waves including their properties.
- Identify and describe fluids in motion and at rest and interpret basic laws of thermodynamics

### Required/suggested Textbooks and Materials

#### Textbooks

"College Physics: A Strategic Approach"

Authors: Randall D. Knight, Brian Jones, Stuart Field

Publisher: Pearson

Edition: 4th Edition (2018)

"College Physics"

Authors: Hugh D. Young, Philip W. Adams, Raymond Joseph Chastain

Publisher: Pearson

Edition: 11th Edition (2018)

"College Physics"

Authors: Alan Giambattista, Betty McCarthy Richardson, Robert C. Richardson

Publisher: McGraw-Hill Education

Edition: 5th Edition (2018)

"Physics for Scientists and Engineers: A Strategic Approach with Modern Physics"

Authors: Randall D. Knight

Publisher: Pearson

Edition: 4th Edition (2016)

"College Physics" by OpenStax

Authors: Paul Peter Urone, Roger Hinrichs, et al.

Publisher: OpenStax

Edition: 2012

### Suggested extra Course Materials

*Suggested Readings/Texts*

Schaum's Outline – College Physics ISBN-13: 978-0071754873

Schaum's Outline – 3,000 Solved Problems in Physics ISBN-13: 978-0071763462

Fundamentals of Physics 10th Edition by David Halliday, Robert Resnick, Jearl Walker - John Wiley & Sons, Inc  
ISBN-13: 978-1118230725

## Assignments & Academic Calendar

*Topics, Reading Assignments, Exam Dates*

### Tentative Schedule

Date	Lecture#	Lecture Contents	Reading Assignment	
20/08	Tue	01	Course introduction, math review, models, measurements.	Ch0, 1
22	Thu	02	Vectors	Ch1
27	Tue	03	Motion along a straight line: displacement, time and average velocity	Ch2
29	Thu	04	Motion along a straight line: average and instantaneous acceleration, motion with constant acceleration	Ch2
03/09	Tue	05	Motion in a plane: velocity in a plane, acceleration in a plane, projectile motion.	Ch3
05	Thu	06	Motion in a plane: projectile motion, uniform circular motion, relative velocity in plane.	Ch3
10	Tue	<a href="#">Exam 1</a>		
12	Thu	07	Newton's laws of motion: force, Newton's first law, mass and second law.	Ch4
17	Tue	08	Newton's laws of motion: mass and second law, mass and weight, third law, free-body diagrams.	Ch4
19	Thu	09	Newton's laws of motion: third law & free-body diagrams	Ch4
24	Tue	10	Applications of Newton's laws: particles	Ch5
26	Thu	11	Circular motion and gravitation	Ch6
01/10	Tue	12	Circular motion and gravitation	Ch6
03	Thu	13	Work and energy	Ch7
08	Tue	14	<a href="#">Exam 2</a>	Ch7
10	Thu	15	Momentum	Ch8
15	Tue	16	Momentum	Ch8
17	Thu	17	Rotational motion	Ch9
22	Tue	18	Rotational motion	Ch9
24	Thu	19	Dynamics of Rotational Motion	Ch10
29	Tue	20	Dynamics of Rotational Motion	Ch10

31	Thu	Exam 3		
05/11	Tue	21	Exercises in class	Ch11
07	Thu	22	Elasticity and Periodic Motion	Ch11
12	Tue	23	Elasticity and Periodic Motion	Ch11
14	Thu	24	Mechanical Waves and Sound	Ch12
19	Tue	25	Fluid Mechanics	Ch13
21	Thu	26	Temperature and Heat	Ch14
26	Tue	-----	Fall Break	
28	Thu	-----	Holiday: Thanksgiving	
03/12	Tue	27	Temperature and Heat / Final Review	Ch14
05	Thu	28	Final exam (Exam 4)	

### Class Materials

Electronic copies of PowerPoint slides used in class will be posted on eLearning (go to eLearning on the UTD home page). Log in to the section for this class listed as PHYS 1301. Use the slides as guides to prepare your own handwritten notes.

### Homework Problem Assignments

Weekly assignments will be set for each chapter we cover throughout the semester. The problems in the assignments are mostly taken from the exercise problem section at the end of each chapter.

The bi-weekly or weekly homework/quiz assignment will be released before or on Friday of that week and will cover the material for that week or the other week with the accumulated materials. The due time for online submission will be at 11:59 PM next week Thursday (Texas time) unless specified on eLearning (with more or less time).

Exercises will be sent (email, e-learning or in the main course's folder), these activities will not be graded.

Only assignments (homework/quiz/exam) posted on the e-learning platform will be graded to count for the final grade.

It is recommended that you print out your homework problems and do the work on your printouts. This is a convenient way to keep everything together. Successful students have done this in the past.

### Examinations

Homework and/or classwork will be assigned. It is possible that some assignments will be designated to be done by teams of students or individually. This will be an optional assignment in terms of team or individual participation. The instructor will define this process in every class.

There will be four major exams: Exam 1, Exam 2, Exam 3, and the Final Exam(Exam 4). All exams will be conducted in person (or online for special cases, such as health issues) in the classroom and submitted online in eLearning as a PDF file with your solutions unless specified otherwise.

### Grading policy

One or more of your homework assignments (tests) with the lowest score will not be counted towards your final grade, applying the same rule for the tests/exams. The instructor will compute how many will be dropped based on the number of assignments using a simple formula. For example, the total number of tests/exams to be considered is calculated as  $n - \text{int}(n/3)$ , where  $n$  is the number of given tests/exams.

Example: 5 applied tests/exams  $\Rightarrow 5 - \text{int}(5/3) = 5 - 1 = 4$  tests/exams to be used for the final average grade. Every exam will be related by the topics to some homework(s) (HMWks). The final average will be computed using the formula:  $(50\% \text{HMWks} + 50\% \text{EXAMS})/2$

Students are encouraged to attend lectures in person. The student or team will have a chance to earn extra points or bonuses during some classes by solving questions given by the instructor during class time. The points can be added to the next related exam, in terms of topics. The value of these points/bonus questions and their number will be established by the instructor in real-time during each class.

### Grade Scale

A+	100
A	92.0
A-	88.5
B+	86.0
B	80.0
B-	77.5
C+	75.0
C	69.0
C-	66.5
D+	64.0
D	58.0
D-	54.5
F	<54.5

### Technical Support

If you experience any problems with your UTD account, you may send an email to: [assist@utdallas.edu](mailto:assist@utdallas.edu) or [eLearning@utdallas.edu](mailto:eLearning@utdallas.edu) . You may also call the UTD Computer Helpdesk at 972-883-2911.

### Course & Instructor Policies

#### *Make-up exams*

There will be no make-up exams, except for prearranged serious interferences that you can document PRIOR to the date of the exam. E-mail the instructor your request for missing the exam and the reason BEFORE the exam is given.

#### *Class Attendance*

Students are encouraged to attend lectures in person. The student or team will have a chance to earn extra points or bonuses during some classes by solving questions given by the instructor during class time. The points can be added to the next related exam, in terms of topics. The value of these points/bonus questions and their number will be established by the instructor in real-time during each class.

#### *Classroom Citizenship*

For the benefit of your fellow students and instructor, you are expected to practice common courtesy about all class interactions.

**Disruption of class will be grounds for reduction in your grade.**

**During class time please mute your electronic devices and “raise hand” to ask questions.**

### Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

*“As a Comet, I pledge honesty, integrity, and service in all that I do.”*

### University Policies and Procedures

The following link constitutes the University’s policies and procedures segment of the course syllabus. Please go to <https://go.utdallas.edu/syllabus-policies> for these policies.

The University of Texas at Dallas is committed to providing reasonable accommodation for all persons with disabilities. The syllabus is available in alternate formats upon request. If you are seeking classroom accommodations under the Americans with Disabilities Act (2008), you are required to register with the accessibility Resource Center (ARC), located in the Administration Building, Suite 2.224. Their phone number is 972-883-2098, email: [studentaccess@utdallas.edu](mailto:studentaccess@utdallas.edu) and website is <https://accessibility.utdallas.edu> . To receive academic accommodations for this class, please obtain the proper accessibility Resource Center(ARC) letter of accommodation and meet with me at the beginning of the semester.

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