General Physics I
Physics 1410
Fall 2026

Instructor Information

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The best way to reach me with questions or concerns is via **UNT email**.

Welcome! As members of the UNT community, we are all committed to being part of an institution that respects and values the identities of the students and employees we interact with. UNT does not tolerate identity-based discrimination, harassment, or retaliation. Everyone should feel comfortable being their authentic selves in our class. If you have any questions or concerns, please do not hesitate to contact me.

Communication Expectations: All course materials and announcements will be available on Canvas. For questions or concerns, please email me at **andrea.citati@unt.edu** and include **"PHYS 1410"** in the subject line. If you do not receive a response within two business days, please send a follow-up email.

Class Meetings

Lecture (001)	**Recitation (201)**	**Recitation (202)**
PHYS 102	SAGE 230	SAGE 230
Tu, Th 11:10 AM - 12:30 PM	Tu, Th 12:40 PM - 1:35 PM	Tu, Th 1:50 PM - 2:45 PM

Office Hours	Monday:	2:00 PM – 3:00 PM	Frisco: FRLD 366 A
	Wednesday:	2:00 PM – 3:30 PM	Frisco: FRLD 366 A
	Tuesday:	3:00 PM – 4:00 PM	Physics Building Room 209 A
	Thursday:	2:30 PM – 3:30 PM	Physics Building Room 209 A

Course Description

This non-calculus (algebra-based) physics sequence is designed for life sciences majors and pre-professional students. During the course, we will cover a variety of topics, including mathematical concepts, kinematics in one and two dimensions, forces and Newton's laws, uniform circular motion, work and energy, momentum, rotational dynamics, simple harmonic motion, fluids, waves and sound, linear superposition, interference, heat, and thermodynamics. Due to the breadth of material, some chapters may not be covered in full.

Course Prerequisites

There are no required prerequisites for this course. To be successful, you should:

- Have proficiency in college algebra and trigonometry.
- Work effectively with classmates and respectfully consider differing perspectives.
- Commit to spending at least 10 hours per week reading, completing assignments, and participating in lecture and recitation.

Course Structure and Objectives

This is an in-person, 16-week course. Class lectures and recitations will be presented as scheduled, and class exams will be held in person. Homework will be assigned and submitted using Physics LE: https://login.physicscurriculum.com/login/index.php, which is also reachable through the Canvas course page. Copies of lecture material and/or chapter summaries will be posted to Canvas before lectures start.

The essential questions for this course are:

- How do you describe motion quantitatively?
- What causes motion to change?
- What constrains possible or likely outcomes?
- How do you apply ideas from Essential Questions 1-3 to systems of many interacting particles?

We will use a combination of active group work, lectures, demonstrations, discussions, interactive conceptual and quantitative questions, and at-home preparation and practice to achieve these goals. This course is a part of the Life and Physical Sciences core. Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences by fostering skills associated with the four core objectives:

- **Critical Thinking Skills**, including creative thinking, innovation, inquiry, and analysis, evaluation, and synthesis of information
- **Communication Skills**, including effective development, interpretation and expression of ideas through written, oral and visual communication
- **Empirical and Quantitative Skills**, including the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- **Teamwork**, including the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Lab Credit: You must enroll separately in Physics 1430 for laboratory science credit.

Textbook & At Home Practice

The chapter module will discuss most course material concepts, demonstrations, and simulation videos. For further reading, refer to the corresponding chapter of the Physics textbook. For the textbook, please use the following option: College Physics from OpenStax, which is freely downloadable.

https://openstax.org/details/books/college-physics

OpenStax is a nonprofit ed-tech initiative based at Rice University. It provides free, peer-reviewed, openly licensed textbooks for introductory college. OpenStax is licensed under Creative Commons Attribution License v4.0. Digital Version ISBN-13-978-1-947172-01-2 Paperback: ISBN-13: 978-1-50669-809-0

At-home practice will be completed through the Physics LE and will be accessible through the following link.
https://www.physicscurriculum.com/

Physics LE has a textbook and homework that cost less than $30 per student per semester. Homework is intended to be practiced, so there is no penalty for an incorrect answer if you arrive at the correct answer before the submission deadline.

Access to a Computer or Laptop
Some assignments cannot be completed from mobile devices such as phones, tablets, or Chromebooks. Supplementary materials and/or readings may also require a computer. This course has digital components. To fully participate in this class, students will need internet access to reference content on the Canvas Learning Management System. If circumstances change, you will be informed of other technical needs to access course content. Information on how to be successful in a digital learning environment can be found at Learn Anywhere (https://online.unt.edu/learn).

Calculator
For exams, you will need a calculator that is not a communication device (e.g., your phone or smartwatch). The calculator needs to be able to do trigonometric calculations, but graphing is not required.

Learning From Mistakes: Learning necessarily involves making mistakes. If you never make mistakes, it likely means you are not being sufficiently challenged. The goal is to make most of your mistakes on homework and during in-class practice, where you can ask questions and review your notes or textbook to learn from them before the exam. If you make a mistake on an exam, your goal should be to understand what went wrong and learn from it so that you do not repeat the same mistake in future assessments.

Attendance

You are expected to attend all lectures and recitations for the section in which you are enrolled. Please arrive on time and be prepared to participate. If you are late, join the class without disrupting others. Physics 1410 can occasionally be challenging, so why not give it 100% of your attention? Avoid distractions from phones and other devices, engage in lecture, and participate fully in recitation by staying on task and communicating with your classmates, TA, and instructor.

Students will be notified by Eagle Alert if there is a campus closing; see Campus Closures Policy (https://policy.unt.edu/policy/15-006).

Keys to Success

- **Actively Participate**
  Class is a valuable opportunity to practice problems, ask questions, and discuss concepts with your peers. If all you do is listen to the instructor, you may develop a false sense of understanding. It's important to attempt problems on your own or with a neighbor so that when the instructor presents the solution, you can identify the subtle or confusing parts.

- **Ask Questions**
  It is okay to ask a question that has already been answered. Asking questions shows that you are

thinking critically and actively trying to learn, and that is the goal. If a question comes to mind while you are studying at home, write it down so you can bring it up in the next class, during my Office Hours, or during a group study session. Explore Navigate360's Study Buddy (https://navigate.unt.edu) tool to join study groups.

- **Learn From Mistakes**
  Learning involves making mistakes. If you never make mistakes, you're not being sufficiently challenged. Aim to make most of your mistakes on homework and during in-class practice, so you can ask questions and review your notes or textbook before the exam. If you make a mistake on an exam, take time to understand what went wrong and learn from it to avoid repeating it in the future.

Support

I do not expect you to go through this course alone. Whenever you find yourself in need of some assistance, know there are many options available to you.

Meeting with the TA's or me during drop-in office hours

- Please do not hesitate to seek help. I am available during office hours and by appointment, and I welcome questions from both individuals and study groups. Email is the best way to reach me or your TA, and I will respond as promptly as possible.

FREE tutors provided by the Physics Instructional Center

- There are free tutors in Hickory Hall in the Physics and Biology Resource Center (Room 266). Check Canvas for hours.

Learning Center's Lead Tutors

- Lead Tutors are top UNT students who have made an 'A' in the classes they tutor, maintain at least a 3.0 GPA, and are extensively trained to facilitate successful sessions and help students become better learners.
- Lead Tutors offer one-on-one appointments, hold drop-in hours, and review questions submitted through our Ask-A-Tutor form. Students can access all their services through the website: https://learningcenter.unt.edu/tutoring.

Inclusion

Every student in this class should have the right to learn and engage within an environment of respect and courtesy from others. We will discuss our classroom's habits of engagement, and I also encourage you to review UNT's student code of conduct so that we can all start with the same baseline civility understanding (Code of Student Conduct) (https://policy.unt.edu/policy/07-012).

Academic success resources

UNT strives to offer you a high-quality education and a supportive environment, so you learn and grow. As a faculty member, I am committed to helping you be successful as a student. To learn more about campus resources and how to succeed at UNT, go to unt.edu/success and explore unt.edu/wellness. To get all your enrollment and student financial-related questions answered, go to scrappysays.unt.edu.

Accommodations

The University of North Texas makes reasonable accommodations for students with disabilities. To request accommodations, you must register with the Office of Disability Access (ODA) and provide documentation verifying your eligibility. Once approved, ODA will provide your instructors with an accommodation letter, allowing us to discuss and implement appropriate accommodations for the course. Students are encouraged to begin this process early in the semester.

You can request accommodations at any time, but it's important to provide ODA notice to your faculty as early as possible in the semester to avoid delays in implementation. Keep in mind that you must obtain a new letter of accommodation for each semester and meet with each faculty member before accommodations can be implemented in each class. You are strongly encouraged to meet with faculty regarding your accommodations during office hours or by appointment. Faculty have the authority to ask you to discuss your letter during their designated office hours to protect your privacy. For more information and to access resources that can support your needs, refer to the Office of Disability Access website (https://studentaffairs.unt.edu/office-disability-access).

Assessing Your Work

Grades will be determined by the following percentages:

At-Home Preparation and Practice	15%
Recitation	15%
Exams (15% each)	60%
Project	7%
Attendance	3%
Total	100%

The final class letter grade depends on your course percentage:

≥89.50%, you will receive an A
<89.50% and ≥79.50%, you will receive a B
<79.50% and ≥69.50%, you will receive a C
<69.50% and ≥59.50%, you will receive a D
<59.50%, you will receive an F

At Home Preparation and Practice

Physics is not a spectator sport. Learning requires reading, studying examples, and working problems on your own. Because these activities are essential to success in the course, they make up a significant portion of your final grade. To allow for occasional difficulties throughout the semester, your three lowest scores in this category will be dropped.

Before Lecture Preparation

Class time is used most efficiently when everyone has pre-read the section(s) of the text that are stated to be discussed and has thought a bit about the content.

- Pre-Lecture assignments will be posted in Canvas and **will be due by 11:59 pm** the night before lecture. This will give me time to review your responses and adjust my lecture if needed. Your

textbook is a vital source of information for the topics covered in class, and you are expected to complete the reading assignment and watch the assigned videos.
- Late work is not accepted unless the lecture is postponed (due to weather or other university closure, or instructor emergency)
- I expect everyone to complete the reading before class, but I do not expect you to understand everything completely at first. We will get there together!

After Lecture Practice

Follow each lecture by practicing problems, as this is essential to learning physics. I encourage you to start these assignments early, since they may be difficult to complete in a single sitting. Rather than cramming, try to work a few problems each day.

- Practice sets are available online through Physics LE.
- Assignments will be **due by 11:59 PM Central**
- Late work will be accepted after the due date, with a penalty (see Canvas).
- I encourage you to work in groups. Many problems will have random values within the problem, so you must submit your own work. You should write up the final solutions individually, in your own words.
- Make sure you understand the reasoning behind the solution.

Recitation

The purpose of recitation is to practice problems with your classmates and to ask questions.

- My expectation is that you are actively engaged with your group for the entire class period. Be willing to make mistakes and volunteer tentative ideas for discussion.
- You should not be on your phone or working on other assignments. Your score will be reduced if we notice that you are off task or not contributing.
- You may be required to turn in a paper copy of your work, upload a photo to Canvas to an Assignment/Quiz/Discussion Board in Canvas, or submit to Pearson Mastering Physics.
- Attendance is required. You may not earn credit by completing the tasks at home. However, if you miss recitation, you should work the problems yourself and ask about them during office hours or tutoring. They may appear on exams!

Project

In physics classes, we often talk about a limited number of scientists and experiments/technology. But there are so many individuals who can be role models for us that fall outside of the few we cover in class. Every student deserves the chance to see themselves in science. The goal of this project is for students to research and present an experiment/technology that inspires them. The topic you choose must be approved by the instructor and be connected to course content. More detailed information about this project will be posted in Canvas.

Exams

The final way for you to demonstrate your mastery of the course content is through examination.

- There are four *in-class* unit exams. Each unit exam focuses on newly covered topics but may require prior physics knowledge. The exams will be held as indicated in the schedule at the end of the syllabus.

- All exams will be in person and closed book, without access to additional online or digital resources. An equation sheet will be provided. You must provide your own calculator. You will be notified in Canvas if additional materials are permitted.
- Exams will be taken in the Sage Hall Testing Center.
- Be extremely quiet in the hallway outside of the Testing Center before and after your exam and while in the common space within the Testing Center. If you want to chat with classmates before or after the exam, use the wonderful spaces on the first floor of Sage Hall, NOT the hallway outside of the Testing Center.
- Missed exams will receive a score of zero, and no make-up exams will be given unless you have a university-approved absence.
- Questions about exam grading must be directed to the instructor in writing within one week of receiving your graded exam.
- A final exam will be offered in the regular classroom. The final exam will have four sections, corresponding to each of the unit exams. Your score on each section of the final exam will be used to calculate a weighted average with your original attempt. This score can replace the corresponding unit exam score. More information about the final exam will be provided in lecture.

Extra Credit

Extra credit may be offered for students on the edge of two letter grades. See Canvas for details.

GenAI use

I use GenAI as a tool to help me brainstorm, find connections between class content and the different majors in this course, and to streamline tasks like creating graphics. I will always disclose how I use GenAI, and I expect the same from you. Using any tool to solve physics problems for you may seem like a good decision in the moment, but this action does not support learning, and so I strongly discourage it. In accordance with the UNT Honor Code, unauthorized use of GenAI tools is prohibited. Using GenAI content without proper credit or substituting your own work with GenAI undermines the learning process and violates academic integrity. If you're unsure whether something is allowed, please seek clarification.

Course Schedule

The Tentative Course Calendar is presented on the next page.

Date	Topics	Textbook	Activities
Week 1	Foundations of science; motion basics; vectors	Textbook Chapter 1	Recitations At Home Prep At Home Practice #1 (Physics LE Intro)
Week 2	1D motion	Textbook Chapter 2	Recitations At Home Prep At Home Practice #2
Week 3	2D motion; Forces and Newton's Laws	Textbook Chapter 3 Textbook Chapter 4	Recitations At Home Prep At Home Practice #3

Week 4	Tension and Friction; Drag Force; Elasticity	Textbook Chapter 5	*No class Monday, Sept 7 Recitations At Home Prep At Home Practice #4
Week 5 Unit 1 Exam	Uniform Circular Motion; Gravitation	Textbook Chapter 6	Recitations At Home Prep At Home Practice #5
Week 6	Work and Energy	Textbook Chapter 7	Recitations At Home Prep At Home Practice #6
Week 7	Collisions and Momentum	Textbook Chapter 8	Recitations At Home Prep At Home Practice #7
Week 8 Unit 2 Exam	Statics and Torque; Rotational Kinematics; Angular Momentum	Textbook Chapter 9	Recitations At Home Prep At Home Practice #8
Week 9	Angular Momentum	Textbook Chapter 10	Recitations At Home Prep At Home Practice #9
Week 10	Statics and Dynamic Fluids	Textbook Chapter 11	Recitations At Home Prep At Home Practice #10 Project Topic Submitted for Approval
Week 11 Unit 3 Exam	Fluids review	Textbook Chapter 12	Recitations At Home Prep At Home Practice #11
Week 12	Thermal expansion; Heat Transfer; Thermo Oscillatory Motion	Textbook Chapter 13 Textbook Chapter 14	Recitations At Home Prep At Home Practice #12
Week 13	Waves; Sound; Physics of Hearing	Textbook Chapter 16	Recitations At Home Prep At Home Practice #13
Week 14 Unit 4 Exam	Sound review	Textbook Chapter 17	Recitations At Home Prep At Home Practice #14
Week 15	Course Review		Project Submission & Peer Reviews
Week 16		**Final exam**	December 10th 10:30 AM – 12:30 PM