General Physics II—PHYS 1420 Section 001 (Spring 2026)

Instructor Information

Dr. Rebekah Purvis Email: rebekah.purvis@unt.edu Office: Physics Building, Room 209E
Office hours:

Monday	Tuesday	Wednesday	Thursday	Friday
9:30-10:30 am 2:00-2:30 pm	9:30-10:30 am 1:00-2:00 pm	- -	- 2:00-3:00 pm	- 12:00-1:00 pm

I am excited to work with you this semester! My research background is in heliophysics, which is the study of the Sun and its effect on objects in the solar system. I am passionate about creating a positive learning environment for students…especially given the reputation that physics has. I hope by the end of the semester you have an appreciation for how physics can be applied to your life.

Teaching Assistants: Mikaila Lapinski and Tise Fagbeja
Office hours: Will be posted in Canvas

Course Information

PHYS 1420 is a non-calculus physics sequence suitable for life sciences majors and preprofessional students. We will survey major subject areas in classical physics including principles and applications of electricity, magnetism, light, and modern (atomic, nuclear, and quantum) physics. At the completion of the course, you should be able to apply these concepts in everyday situations and your future career.

The major learning objectives for this course are:

1. Apply prior knowledge, including math skills and concepts from Physics 1, to new topics: electricity, magnetism, optics, and modern physics.
2. Understand behavior of light including interference, reflection, and refraction, including applications such as lenses, mirrors, and thin films.
3. Solve problems involving electric force, field, potential, and potential energy, including applications such as circuits with resistors and capacitors.
4. Solve problems involving magnetic force, field, and flux, including varying magnetic fields and induced current, including applications such as mass spectrometers and generators.
5. Understand properties of the atom that explain processes such as electron transitions, radioactive decay, ionizing radiation, and applications such as lasers, spectroscopy, and radioactive dating.

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

Course Structure

This class is classified as "In-Person" which requires in-person participation during the scheduled class periods and recitations. 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.

At the same time, 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.

How to Succeed in this Course

To be successful in this course, you will need to be proficient in the following:

- Using Canvas, including the Pearson platform through Canvas
- Downloading and uploading files
- Sending and receiving emails

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 me or the TAs during drop-in office hours
    - I truly enjoy teaching physics, and I am more than happy to help you outside of class either individually or in groups.
    - Feel free to drop by during my drop-in hours or schedule an appointment via email. I will also respond to emails regularly between the hours of 9 AM – 5 PM Monday through Friday and will do my best to respond in a timely fashion on the weekend and in the evening.
- 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
    - The Learning Center lead tutors will also be available to assist students with PHYS 1420. 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 of their services through the website: https://learningcenter.unt.edu/tutoring.
- Pearson College Physics resources
    - Study tips, LOTS of extra practice problems, videos working out example problems, and much more.

Creating an Inclusive Learning Environment

I value the many perspectives students bring to our campus. Please work with me to create a classroom culture of open communication, mutual respect, and belonging. Not everyone will know every answer right away, and there will be many times where a misconception prevents someone from getting to the right answer. Together, we can ensure a safe and welcoming classroom for all. If you ever feel like this is not the case, please stop by my office and let me know. We are all learning together.

Accommodations

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time; however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access website (https://studentaffairs.unt.edu/office-disability-access). You may also contact ODA by phone at (940) 565-4323.

Required Materials

1. Textbook: College Physics by Knight, accessed through Pearson (includes the E-text book and resources)
   You will be able to purchase the package at the UNT bookstore or through our Canvas course module. You will have free access to the text for 14 days after the date that you first access the site. After that time, you must have purchased and entered an access code to complete pre-lecture and homework assignments.
2. 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
3. Calculator

Assessing Your Knowledge

Grades will be determined by the following percentages:

At Home Preparation and Practice	25%
Recitation	20%
Exams (lowest score is 10%, top scores 15%)	55%
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

Grades on the border of a letter grade will not be bumped. These scores can be improved through reflections and class participation. See Extra Credit section for details.

At Home Preparation and Practice

Physics is not a spectator sport – you must engage with the content by reading about the concepts, studying solved examples, and working problems yourself. I respect the time and effort these tasks take and therefore a significant portion of your final grade is determined by the activities you complete outside of lecture.

Before Lecture Preparation

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

- Pre-Lecture assignments will be posted on the Canvas page through Pearson 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 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 – we will get there together!

I understand that most students will occasionally miss an assignment. To compensate for various possible scenarios throughout the semester that may cause an assignment to not be turned in or not go well, the three lowest scores from this category will be dropped.

After Lecture Practice

Follow up lecture by practicing problems, which is key to understanding physics. I encourage you to begin these assignments early, as it is unlikely you will be able to complete them in one sitting. I encourage you to follow the practice of Distributed Studying – work a few problems each day.

- Practice sets are available online through Pearson, including Dynamic Study Modules
- Assignments will be **due on Mondays by 11:59 PM Central**
- Late work will be accepted after the due date, with 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.

I understand that most students will occasionally miss an assignment. To compensate for various possible scenarios throughout the semester that may cause an assignment to not be turned in or not go well, the three lowest scores from this category will be dropped.

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!
- The top 12 scores will be averaged and assigned to the Recitation category.

Exams

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

- There are four *80*-minute 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 are 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.
- Your top three exam scores will count for 15% of your final grade in the course. The lowest score counts for 10% of your final grade in the course.
- 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 on Tuesday**, May 5, 10:00 am – 12:00 pm** 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 can replace the corresponding unit exam score. More information about the final exam will be provided in lecture.

Extra Credit

In class practice

During lectures I will ask you to work problems as an individual or in groups. Engaging in these activities can earn up to 3% extra credit.

Reflections

Each Exam Wrapper Reflection and End of Course Reflection will be worth up to 0.4% extra credit on your final course average. If a student completes 4 Exam Wrappers and the End of Course reflection activity by the deadlines in Canvas, the student can increase their final course score by up to 2%.

Project

In physics classes, we often talk about a limited number of scientists and experiments/technology. But, there are so many individuals that 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.

Attendance and Participation

Being punctual indicates our respect for others. Please arrive before class begins to find a seat, prepare your materials, and connect with your peers. The beginning of class is especially critical—just like the beginning of a movie or book. That being said, being late to class is sometimes inevitable. If you are late, know that you are welcome to join the class, but please do so without distracting others. You are expected to be engaged in lecture, contribute when you can, and participate fully in recitation by staying on task and communicating with your classmates, TA, and instructor.

Tentative Course Calendar

WEEK	DATE	TOPIC
1	Tues, 1/13	Welcome to General Physics II; Properties of waves; Math Review
	Thurs, 1/15	Light and Optics
2	Tues, 1/20	Optics
	Thurs, 1/22	Optics and Vision
3	Tues, 1/27	Interference
	Thurs, 1/29	Interference
4	Tues, 2/3	**Exam 1 – choose either 11:00 – 12:20 or 12:30 – 1:50 pm; Sage Hall Testing Center**
	Thurs, 2/5	Electric charges and force
5	Tues, 2/10	Electric field and potential
	Thurs, 2/12	Review Energy; Electric potential energy
6	Tues, 2/17	Capacitors; Ohm's Law
	Thurs, 2/19	Ohm's Law; Capacitors in circuits
7	Tues, 2/24	DC Circuits
	Thurs, 2/26	DC Circuits (Friday – early drop-in day for Exam 2, 8am-5pm Sage Hall Testing Center)
8	Tues, 3/3	Complex circuits; AC Circuits (Tuesday is drop-in day for Exam 2, 8am-5pm Sage Hall Testing Center)
	Wed, 3/5	Magnetic Fields and Force
	SPRING BREAK	
9	Tues, 3/17	Magnets and Magnetic Fields
	Thurs, 3/19	Magnetic Flux and Induced Current
10	Tues, 3/24	Magnetic Flux and Induced Current
	Thurs, 3/26	EM Induction Applications (Friday – early drop-in day for Exam 3, 8am-5pm Sage Hall Testing Center)
11	Tues, 3/31	Topics in Atomic Physics (Tuesday is drop-in day for Exam 3, 8am-5pm Sage Hall Testing Center)
	Thurs, 4/2	Topics in Atomic Physics
12	Tues, 4/7	Topics in Atomic Physics
	Thurs, 4/9	Topics in Atomic Physics
13	Tues, 4/14	Topics Nuclear Physics
	Thurs, 4/16	Topics Nuclear Physics
14	Tues, 4/21	Ionizing Radiation
	Thurs, 4/23	Nuclear Power (Friday – early drop-in day for Exam 3, 8am-5pm Sage Hall Testing Center)
15	Tues, 4/28	Review Day 1 (Tuesday is drop-in day for Exam 3, 8am-5pm Sage Hall Testing Center)
	Thurs, 4/29	Review Day 2

Final Exam – Tuesday, May 5, 10 am – 12 pm in regular classroom