General Physics II
Physics 1420
Fall 2025
Lecture Section 200, MWF 11:00 – 11:50 PM in the Physics Building Rm 104
Recitation Section 204, Mondays 1:00 -1:50pm in Wooten Hall Rm 316

Instructor Information

Instructor: Mikaila Lapinski M.S. (mikailalapinski@my.unt.edu)
Office: TBD
Office Hours: MW 9:00-10:00am, Tu 11:00-12:00pm in the PIC (Hickory Hall 226)
Teaching Assistants: Daniel Brown (danbrown3@my.unt.edu) , Jeremy Gingrich (jeremygingrich@my.unt.edu), Gabriel Rodriguez Guijarro(gabrielrodriguezguijarro@my.unt.edu)

Hello! I am excited to work with you this semester to explore the exciting world of electricity and magnetism. 😊 I am a PhD student here at UNT. My research area is in quantum optics (how light and matter interact) with my current work focusing on modeling biophotons. I have a great interest in promoting interdisciplinary research and my goal this semester is to foster a positive learning environment where you can be curious and hopefully gain a new appreciation for the physics happening around you! I encourage you to find connections between the topics we will cover in this course and your specific interests/career paths. While physics can be very difficult, I believe that everyone is capable of learning this material. I aim to help build confidence in your math and physics skills so that you can apply them to your life and career!

Course Description, Structure, and Objectives:

This Non-Calculus Physics II course will survey major subject areas in classical physics including principles and applications of electricity, magnetism, light, and modern physics.

Lectures will include discussions, demonstrations, interactive conceptual and quantitative questions to understand the fundamental laws of nature and develop problem-solving skills. At the completion of the course, you should be able to apply these concepts in everyday situations and your future career.

Course Objectives

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

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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, homework, and more 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 on the Canvas Learning Management System.

How to Succeed in this Course

To be successful in this course you must actively participate in taking in the information (from lecture and reading) and outputting the information (through solving problems and discussing with classmates). I encourage you to **ask questions**, even if that question has already been answered.

Support

If you find yourself needing help after attempting the homework or studying on your own, please know there are many options available to you.

- Ask a classmate or work with a study group
- Ask one of your TAs or myself during our drop-in office hours
- FREE tutors provided by the Physics Resource Center (Hickory Hall 226)
- UNT Learning Center’s Lead Tutors

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/officedisability-access). You may also contact ODA by phone at (940) 565-4323.

Required Materials

Textbook: Physics by Cutnell and Johnson (any edition should work)

Note: You are not required to use the online textbook!

Supplemental Reading: College Physics 2e by Urone and Hinrichs available free online at OpenStax.org

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Assessing Your Work

Grades will be determined by the following percentages of the total points:

Lecture Attendance	3%
Recitation	15%
Homework	15%
Exams	50%
Final Exam	20%
Total	103%

The final class letter grade depends on your course percentage:

A ≥ 89.50%
79.50 ≤ B < 89.50%
69.50 ≤ C < 79.50%
59.50 ≤ D < 69.50%
F ≤ 59.50%

Homework

Homework gives you the opportunity to practice the material, which is key to understanding physics. I encourage you to begin the homework assignments early, as it is unlikely you will be able to complete them in one sitting.
There are 2 types of assignments that will be given for each unit:

1. Guided readings
   - Equation Sheet
2. Problem Sets

Guided Readings: Before the first class each week students are to read the chapters of the book that are being covered that week. Guided reading will help the students through each chapter and highlight key concepts, vocabulary, and equations.
Equation Sheets: While not strictly an assignment for a grade, each student is responsible for writing their own equation sheet for exams. The guided reading will help you add relevant equations. The purpose of not giving students an equation sheet is to ensure each student knows what each equation is and does.
Problem Sets: For each unit you will be assigned a selection of practice problems from each chapter.

- All homework will be paper based.
- You may work on homework with a group, but all students must submit work individually.
- Unit homework will be due the day before each unit's exam.

Recitation

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

- Recitation attendance is required.

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- There will be one assignment in recitation each week that you will work as a group to complete. You will be required to upload a photo of your group's work to Canvas. **You must be present at recitation to receive points from recitation assignments.**
- Two recitation grades will be dropped.

Exams

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

- There are *four* 50-minute exams during normal class times. Each exam focuses on newly covered topics but may require prior physics knowledge to answer. The exams will be held as indicated in the schedule at the end of the syllabus.
- All exams will be in-class and are closed book, but you may bring your own equation sheet which may be written on both sides of an 8.5 x 11in piece of copy paper. **No equation sheet will be provided.**
- Exams will be taken in the normal classroom, PHYS 104.
- Missed exams will be graded as a zero and no make-up exams will be given unless you have a university-approved absence or work with the Dean of Students for an emergency absence.
- The lowest exam grade will be replaced by the final exam grade.
- Questions about exam grading must be directed to the instructor in writing within one week of receiving your graded exam.

The final exam will be **Monday, Dec. 8th at 10:30 am – 12:30 pm**. The final exam will be cumulative.

Attendance and Participation

Being punctual indicates our respect for others. Please arrive before class begins to find a set, prepare your materials, and connect with your peers. The beginning of class is especially critical – just like the beginning of a movie or book. 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.

AI Policy

The use of ChatGPT or other generative AI tools to solve homework problems or for further studying is strongly discouraged. Use of generative AI to solve homework problems will not help you prepare to solve problems on your own. If you would like extra problems to practice preparing for exams, please just ask me or consult the examples in the textbook. I will be more than happy to break down problems and help with problem solving during my office hours or through email.

Technical Support

The UIT Helpdesk will provide support with any issues you might have with Canvas, and they may be able to help you troubleshoot other computer issues. 940-565-2324 or helpdesk@unt.edu. Canvas does not work well with some browsers. Chrome browser does support Canvas.

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Course Evaluation

The Student Perceptions of Teaching (SPOT) is a requirement for all organized classes at UNT. This short survey will be made available to you on-line at the end of the semester and will provide you with an opportunity to provide feedback to your course instructor. SPOT is considered to be an important part of your participation in this class. You will receive an email from "UNT SPOT Course Evaluations" from no-reply@iasystem.org with the survey link. You will have separate SPOT evaluations for lecture, recitation, and lab. During fall and spring semesters SPOT surveys are open to students to complete two weeks prior to final exams.

UNT Policies

Academic Integrity Standards and Consequences

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

ADA Accommodation Statement

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Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

Sexual Assault Prevention

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex and therefore prohibit sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking, and/or sexual assault, there are campus resources available to provide support and assistance. UNT's Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim's compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565- 2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at oeo@unt.edu or at (940) 565 2759.

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Tentative Course Schedule:

Week	Date	Lecture Topic	Recitation
1	8/18	Geometric Optics: Reflection and Images formed by Mirrors	Recitation 1
	8/20	Geometric Optics: Refraction and Images formed by Lenses	
	8/22	Optical Instruments, Vision, and Intensity	
2	8/25	Wave Optics: Electromagnetic Waves	Recitation 2
	8/27	Wave Optics: Polarization	
	8/29	Wave Optics: Interference and Diffraction	
3	9/1	Labor Day – No Class	Recitation 3: (Optional At-Home)
	9/3	Review	
	9/5	**Exam 1: Light and Waves**	
4	9/8	Charges and Coulomb's Law	Recitation 4
	9/10	Electric Fields and Gauss' Law	
	9/12	Electric Potential Energy and Work	
5	9/15	Electric Potential and Voltage	Recitation 5
	9/17	Capacitors and Dielectrics	
	9/19	Applications of Electric Potential	
6	9/22	Ohm's Law, Resistance, Resistivity	Recitation 6
	9/24	DC Circuits: Adding resistors and capacitors	
	9/26	Complex DC Circuits: Kirkoff's Laws	
7	9/29	RC Circuits and Applications	Recitation 7
	10/1	Review	
	10/3	**Exam 2: Electricity and DC Circuits**	
8	10/6	Introduction to Magnetic Fields	Recitation 8
	10/8	Magnetic Fields and Torque	
	10/10	Applications of Magnetism	
9	10/13	Electromagnetic Induction	Recitation 9
	10/15	Faraday's Law and Lenz's Law	
	10/17	Applications	
10	10/20	Introduction to AC Circuits	Recitation 10
	10/22	Resonance in Electric Circuits	
	10/24	Applications	
11	10/17	Introduction to Quantum Physics or TBD	Recitation 11
	10/29	Review	
	10/31	**Exam 3: Magnetism and AC Circuits**	
12	11/3	Particle Wave Duality	Recitation 12
	11/5	Atomic Physics: Parts of the Atom	
	11/7	Quantum Numbers and Rules	
13	11/10	Nuclear Physics: Radioactivity	Recitation 13
	11/12	Substructure of the Nucleus	
	11/14	Medical Applications of Nuclear Physics	
14	11/17	Fusion and Fission	Recitation 14
	11/19	Review	
	11/21	**Exam 4: Modern Physics**	
15	11/24		
	11/26	**Thanksgiving Break – No Classes**	
	11/28		
16	12/1	Final Review	Recitation 15 (Optional)
	12/3	Final Review	
	12/5	Reading Day – No Class	
17	**12/8**	**Final Exam (Cumulative): 10:30 am -12:30 pm**	

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