University Physics I (PHYS 251) — Fall 2026

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Office: 216B South Engineering **Phone:** 319-389-2697

Class: Mon/Fri 10a–10:50a & Wed 9a–10:50a in AG HILL 300

Coffee Hours in Union Atrium: TBD

Additional Meeting times can happily be arranged by contacting me via phone or email (both given above).

Learning Goals

- To develop the ability to discuss your thinking with your peers and your instructors in and out of class
- To use conceptual tools, such as free-body diagrams, in a variety of circumstances as a tool for correctly framing a physical situation
- To approach, solve, and understand a wide variety of physics problems with and without numerical solutions
- To develop conceptual understanding alongside problem solving skills
- To develop mathematical skills specific to applied sciences, building on mathematical skills learned in math courses

We will begin with a study of linear motion and mechanics (forces, masses and acceleration). We will learn that conservation laws (e.g., energy and momentum) provide a wonderful and powerful alternative for understanding physics and solving problems. We will continue with applications and extensions of these fundamentals, including gravitation, rotational motion, statics, and fluids.

How Can I Succeed in This Class? (the most important thing to read)

Being "good" at physics comes with practice. You should expect to spend two hours outside of class for every hour inside class. Homework problems often involve two steps: deciding which principles of physics apply to the problem and then determining the answer (which may involve calculations). I encourage you to talk about these solutions with your friends. The most important thing to talk about is not which number to put where (the calculation is the easy part), but the reasoning that helps you decide what to do with the numbers. Come talk to me early and often if you are struggling with any aspect of the course.

Assignments and Grading

40% – Homework Problems. These will be assigned and due daily. We estimate roughly 40 assignments. PDF scans of your homework will be submitted through Blackboard. They will be graded either as "Meets" or "Does not meet" Expectations. You will receive 50% credit for turning something in on time even if it doesn't meet expectation. For any assignment that doesn't meet expectations, you will have 2 weeks to come to coffee hours and give me a chance to work with you to understand the content. Doing so will change your score to Meets Expectation.

60% – Exams. There will be three unit exams, each worth 20% of your final grade. Exams will take place during our Wednesday 9–10:50a class period, with the first part being an individual exam and the second part being a group exam. Your exam score will be a weighted average of the two scores with the individual exam counting for 2/3 of your exam grade and your group exam counting for 1/3 of your exam grade. The final exam is individual-only, cumulative, and can be taken to replace your lowest exam score.

Exam 1: September 23, 2026 | **Exam 2: October 28, 2026** | **Exam 3: December 2, 2026**

Final Exam: Monday, December 14 1-3pm

Homework Details

Video Feedback

I intend to provide Video Feedback rather than numerical grades for homework that's turned in. This will arrive directly through Blackboard. After turning in a homework assignment, you will need to check whether you received full points or not. If you did not receive full points (1 out of 1), there will be video feedback for you to watch that should give you guidance on how to receive full points.

Late Homework

Homework is ideally turned in the day it is due, however, homework turned in within one week will still be eligible for full credit. After one week, the maximum score you can receive will be 0.5 out of 1.

Attendance Expectations

Coming to class is the most important thing you can do to ensure success in this class. We will be coaching you up on everything you need to complete the homework assignments, which in turn will be the best possible preparation for the exams.

If you are unwell or need to miss class, please take care of yourself. You can come to a coffee hour to get caught up on anything you missed in class. See NDSU Policy 333: Class Attendance for attendance expectations.

Artificial Intelligence (AI) Use

Generative AI tools can be a useful thinking partner at times, but the point of the homework and exams is for you to build your own physical reasoning — so treat AI the way you'd treat a knowledgeable friend, one that you only go to if you have tried a task on your own and are stuck, not a source you copy from.

- Individual and group exam portions, and the final exam: no AI tool use of any kind. These are meant to reflect what you can do and explain on your own or with your assigned group.
- Homework: you're welcome to use AI after you've made your own attempt — to check an answer, get unstuck on a concept, or hear an idea explained a different way. AI should not be the first step, and it should never generate the write-up you submit as your own reasoning.
- If you do use an AI tool on a homework problem, add a one-line note at the top of that problem (what tool you used, what you asked). This will ensure honesty and transparency in your work.
- AI is often confidently wrong about physics reasoning. Verify anything it tells you against your text, your notes, or by asking in class or coffee hours.

This policy is part of the course's academic honesty expectations under NDSU Policy 335: Code of Academic Responsibility and Conduct. Submitting AI-generated work as your own without the disclosure described above is treated as a violation of that policy. If you're ever unsure whether a particular use is OK, ask me before you submit — that conversation is always welcome and never counts against you.

Your instructor will not use AI at any point for the grading of this course. Any submitted work will be safely kept from inclusion in any AI database. AI may be used for generating Digitally Accessible copies of instructor generated materials, such as from hand-written solutions, problem sets and power point slides.

Final Grades

Your final grade will be based on your total score as described above. If you earn one of the percentages shown below, you will receive the grade written on its right.

- > 89.5%: A
- 89.4% – 79.5%: B
- 79.4% – 69.5%: C
- 69.4% – 59.5%: D
- 59.4% – 0%: F

Materials

- Any Calculus-based Physics Textbook (recommended, not required)
- Voting Paper — bring to class every day (if you're in class)
- Scientific calculator for exams

Using Blackboard

Go to: https://blackboard.ndus.edu/

Blackboard will be used primarily for course announcements, receiving and submitting homework, feedback on homework, and posting grades.

Veteran Status and Student Service Members

Veterans and student service members with special circumstances or who are activated are encouraged to notify Dr. Christensen as soon as possible and are encouraged to provide Activation Orders.

Americans with Disabilities Act for Students with Special Needs

Any students with disabilities or other special needs, who need special accommodations in this course, are invited to share these concerns or requests with Dr. Christensen and contact the Disability Services Office (www.ndsu.edu/disabilityservices) as soon as possible.

Academic Honesty

The academic community is operated on the basis of honesty, integrity, and fair play. NDSU Policy 335: Code of Academic Responsibility and Conduct applies to cases in which cheating, plagiarism, or other academic misconduct have occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the Office of Registration and Records. Informational resources about academic honesty for students can be found at www.ndsu.edu/academichonesty. (See also the AI Use Policy above, which is part of this course's academic honesty expectations.)

Family Educational Rights and Privacy Act (FERPA) Statement

Your personally identifiable information and educational records as they relate to this course are subject to FERPA.

Additional Resources for Students

As a member of the NDSU community, resources are available for you should you need help in dealing with adverse reactions to things happening in the world today. A variety of resources are listed below:

For students on campus and remotely (telehealth):

- Counseling Services: 701-231-7671; https://www.ndsu.edu/counseling/
- Disability Services: 701-231-8463; https://www.ndsu.edu/accessibility-disability
- Student Health Service: 701-231-7331; https://www.ndsu.edu/studenthealthservice/
- Dean of Students Office: 701-231-7701; https://www.ndsu.edu/deanofstudents/

For tutoring and academic support:

- ACE Tutoring: 701.231.5554; https://www.ndsu.edu/ace/tutoring
- TRIO Student Support Services: 701-231-8028; https://www.ndsu.edu/triosss

In a crisis or emergency situation:

- Call University Police: 701-231-8998
- Call 9-1-1
- For physical health crises: go to a Hospital Emergency Room
- For mental health crises: go to Prairie St. John's for a Needs Assessment: 701-476-7216 (510 4th St. S.)
- Call Rape and Abuse Crisis Center: 701-293-7273

****Please note that the statements in this syllabus are subject to change as the semester progresses. Any changes will be announced in class and posted on the Blackboard course page. Even if you are not present in class for a particular announcement, you are still responsible for knowing about any changes that may occur.*