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Physics 211 - College Physics I (3 cr)

Session: Fall 2026

Instructor: Prof. John B. Buncher

Office: South Engineering 317

Email: john.buncher@ndsu.edu

Help Hours: MTWTh 11:00 AM – Noon, or by appointment

Class Meetings: MWF 10:00 AM – 11:00 AM

Lecture Location: AGHILL 112

Final: Mon, Dec 14, 2026, 1:00 PM, AGHILL 112

Prerequisites: MATH 105 (Trigonometry) or higher, or placement test

Course Materials

- The primary text for the course will be “College Physics: A Strategic Approach - 4th Edition, Vol. 1”, by Knight/Jones/Field, published by Pearson.
- We will use the “Vevox” in-class polling solution (“clicker” software) - links will be posted in Blackboard.
- The homework for the course will be done through Pearson’s MasteringPhysics system. Access should be included with your textbook purchase through the bookstore. The link will be provided in Blackboard.
- Course materials (lecture slides, handouts, solutions) will be posted on the course Blackboard page. You can log in to Blackboard at <https://blackboard.ndus.edu/>
- A scientific calculator will be required to complete homework assignments and exams.
- A #2 pencil for taking exams.

Course Description

From the NDSU Catalog Course Description: Beginning course for students without a calculus background. Includes basic principles of bodies at rest and in motion, fluids, vibrations, waves, sound, and thermodynamics.

At the most basic level, this course can be thought of as a study in motion (“mechanics”), answering the question “What happens when things interact?” We can make this question more specific: “If we know the how an object is interacting with its surroundings, what kind of motion will it have?” This branch of physics encompasses a large portion of what you experience in everyday life, and our goal will be to understand motion using a few fundamental principles.

Artifact

Course Objectives

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You will still need to complete the assignments, exams, reading, etc. necessary to meet class learning objectives. You can complete missed work by turning in assignments when you are no longer ill, and scheduling a time to make up any missed exams.

Grades

Your final grade will be determined according to the following weights and cutoffs:

Clicker Questions	6%	A	88 %
Reading Quizzes	10%	B	78 %
Weekly Homework	30%	C	68 %
Midterms	2 at 18% each (3 exams, drop lowest)	D	58 %
Final	18%	F	< 58 %

Your LOWEST score of the THREE MIDTERM EXAMS will be DROPPED. I reserve the right to *lower* the grade cutoffs listed above, however they will not be raised.

Note that exams make up 54% of your final score! It is crucial that you prepare and study accordingly.

If you participate in 85% of all clicker questions, you will receive the full 6%. Clicker questions are NOT graded for correctness.

Homework

We will use the LON-CAPA on-line homework system for assignments this semester. Each week will have (roughly) 2-3 on-line Reading Quizzes and one on-line Weekly Homework due. Additionally, you are expected to read the assigned sections of the text and work any suggested problems *before* class so that you are prepared to ask and answer questions in lecture.

Late Policy: For Weekly Homework and Reading Quizzes, the deadlines are mostly there so you know how to pace yourself in the course. It is important to stay on top of assignments and come in for assistance on things you find challenging in order to succeed. That said, I know that “life happens”. If you need an extension, please let me know and we can work something out. Please be aware that if you wait too long to contact me, there might not be much that can be reasonably done to make up material. Contact me as soon as you are able!

Out of Class Time

The university defines that a student with adequate preparation should spend 3 hours per credit on the course each week in order to earn an average grade in the course. You should aim higher than “average student, average grade”, so expect to spend more than 6.5 hours per week (3 hours per credit times 3 credits minus three 50 minute lectures) on this course each week outside of class.

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Attendance & Participation

According to [NDSU Policy 333 www.ndsu.edu/fileadmin/policy/333.pdf](http://www.ndsu.edu/fileadmin/policy/333.pdf), attendance in classes is expected. Veterans and student service members with special circumstances or who are activated are encouraged to notify the instructor as soon as possible and are encouraged to provide Activation Orders.

To succeed in this course it is crucial that you attend the lecture and prepare accordingly. In order to receive the the most out of lecture, you must arrive *on-time* and be prepared for that day's class. Preparation includes (but is not limited to):

- Reading the assigned sections of the text
- Providing feedback in the on-line reading quizzes
- Working the assigned problems
- Bringing the text and any posted lecture slides to class

Additionally, when the class is asked a question (or asked to do something in groups), you are to make every effort to come up with an answer. In-class questions are designed to get you to think, so when answering do not worry about getting the *wrong* answer, if you knew everything already you would not need to enroll in the course!

Labs

The laboratory companion to this class is a separate course. Students taking the lecture are not required to enroll in the lab course. Your grade in the lab does not affect your grade in this course (and your grade in this course does not affect your grade in the lab). The first meetings of PHYS 211L will be held the week of September 1st.

Exams

Exams will be closed-book and taken during lecture. You are not allowed to work with other students on the exams. Any topic covered in class, the reading assignments, or the homeworks may appear on the exam. Details of the format of the exams will be covered closer to the exam time.

Missed Exam Policy: Missed will normally be given zero credit. Official exceptions will be accepted (illness, family emergency, official university function, etc.).

Help Hours (Office Hours)

You are highly encouraged to make use of my Help/Office Hours (listed on the front of the syllabus). Help Hour times may change as the semester progresses, and you will be notified if they do. If you cannot meet

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during those times, email me and we should be able to work something out. During help hours, we can discuss anything that you wish (homework, grading, concepts, exams, topics of interest, etc.). Usually students come in for help on a particular problem, and I am happy to help them with it. Other times students will just work on problems in small groups and then ask me a question when they get stuck, which is also welcome!

AI Policy

The official “AI Policy” in this class is that I ask that you not use any generative AI for any portion of the course (for reasons I will explain), and the following use cases are explicitly not allowed:

- Using generative AI, or any outside tools, during in-class assessments (exams)
- Submitting any of the material I provide to generative AI or similar tools for the purposes of summarizing information - despite not looking the best, they took a lot of time to create, and I do not consent to having AI trained on them.

There may be an “AI Tutor” available through our homework system, MasteringPhysics. I have not tested it to know its capabilities, but you are certainly welcome to use that on the homework, since I feel it would be wrong to ask you to not use it since it is part of the textbook package you are paying for (regardless of my personal stance on AI).

The AI Policy on **my** use of AI is the same - I shall not use it in **any** capacity (creating assignments, creating lecture slides, creating solutions, creating exams, creating announcements, replying to your emails, etc.). Any use of AI-created materials on my end is entirely accidental (i.e. - maybe an image I found was created by AI and that wasn’t disclosed). If you feel that something I used was AI-generated, please let me know and I will remove & replace it ASAP.

I also promise to not **shame or judge** anyone that says they used AI on the homeworks. I will always do my best to help you, regardless of what other help you have sought out previously.

As mentioned above, I implore you to not use any generative AI tools for this class (or any other class, really). The reason is that using these tools fundamentally cheats **you** out of what you should be getting out of the course, which is the ability to reason and problem solve quantitatively and conceptually, specifically within the realm of physics. Using AI to solve or explain the homework shortcuts the (admittedly difficult) task of learning leaving you unprepared, not just for the exams but for anything that uses those quantitative skills later.

Using AI “correctly” is extremely difficult to do (personally, I don’t feel it is possible to use it correctly in an educational setting). If you’re asking it for facts or to solve problems, it’s prone to hallucination, which means you need to know the answers to the questions you’re asking anyway in order to trust the output. It obfuscates and invents sources, so you can’t check its work. If you ask AI to show its “reasoning”, that reasoning is highly context dependent and prone to biases in the original dataset that the AI was trained on (which is basically the entire internet, which contains a lot of nonsense). If you ask it to summarize course materials or lecture notes for you, then you aren’t developing the skills to be able to do so yourself, and you may miss the underlying reasons why the elements it picks out are important.

Ultimately, your education is an investment you make in **yourself**, you are actively “building” yourself over these years with new knowledge and skills. I encourage you to resist any urge to outsource that to AI.

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Accommodations

Any students with disabilities or other special needs who need accommodations in this course are invited to share these concerns or requests with the instructor and contact the [Center for Accessibility and Disability Resources](http://www.ndsu.edu/accessibility-disability) <http://www.ndsu.edu/accessibility-disability> as soon as possible.

FERPA Statement

Your personally identifiable information and educational records as they relate to this course are subject to [FERPA](#).

Feedback

If you have any concerns about the course or suggestions on how it may improve, please let me know! I am happy to consider and implement student suggestions, and I have had success implementing such suggestions in previous courses.

On 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 the Provost](#). Informational resources about academic honesty for students and instructional staff members can be found at <http://www.ndsu.edu/academichonesty>.

You are highly encouraged to work with your fellow students, and to seek out their assistance or the assistance of the instructor, in all of your studies. Working with another person is highly beneficial for both people when there is a healthy working relationship. However, whatever you turn in must be your own work and words. Copying someone else's work and turning it in as your own is a case of academic dishonesty. While we are using LON-CAPA for the homework this semester, the answers you enter still need to represent your own work. You are not permitted to collaborate with anyone else on exams.

If you have any questions about what constitutes academic dishonesty it is your responsibility to ask before the assignment is due.

Need Additional Help?

If you would like additional help outside of office hours, then you are in luck! Free individual drop-in tutoring is available in the Physics Department tutor room (South Engineering, 2nd floor, just before you go *up* the

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stairs) and from NDSU's ACE program (http://www.ndsu.edu/studentsuccess/tutoring_schedule/). I will post the Physics Department tutor room hours as soon as they are available. Please use one of the tutoring resources if you have a large number of questions.

Advice

Here are some helpful tips for success in the course, from my own personal experience and suggestions of other professors.

1. **Work every day:** It is crucial that you keep up with the material and to develop your conceptual understanding. Working a little bit every day will get you much farther than working for a long time once a week or so. You will often need to read the problems, think about them, and then come back to them later once you've had a chance to reflect on them.
2. **Practice:** Physics cannot be learned simply by reading, attending lecture, and memorizing the pages of your physics text. The single best way to learn physics is to *do* it, by practicing via the in-class exercises, lab work, homework, the workbook, etc. This will help get you ready for the exams!
3. **Ask for Help:** Help is available through me via my office hours (or by appointment), other faculty in the department, your fellow students, and private tutoring.
4. **Read Before Lecture:** That way, you're seeing the material for the second time, and are much better prepared to ask questions on things you're having trouble understanding.
5. **Read Critically:** Ask questions and take notes! If something is not clear, make a note of it so you can ask in class. You should also be working through steps done (or omitted) in class and the text. As a friend of mine once said; "The exam will NOT ask if you agree with our solution, but will ask you to come up with your OWN solution."
6. **Participate:** It may not seem like it, but attempting to answer the questions in class will significantly help you. Even if you don't know the answer, thinking about what you *want* to answer will help you understand what ideas you need to spend more time on, and what specific things you need more practice with. Participate all the time!
7. **Use Time Effectively:** If you've been stuck on one problem for 30 minutes, switch to another one (which may cause you to think about the troublesome one in a different way), or seek assistance. That being said, do not despair if it is not obvious what to do after 5 minutes of thinking. These problems will require some extra thought.
8. **Don't Panic:** Physics is challenging. Like anything else worthwhile, it will take practice and perseverance to succeed, but the rewards of understanding how the universe works at a deeper level are well worth it.

Additional Resources for Students

It is *normal* to feel overwhelmed at the best of times, but especially now. 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:

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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/disabilityservices/>

Student Health Service: 701-231-7331; <https://www.ndsu.edu/studenthealthservice/>

Dean of Students Office: 701-231-7701; <https://www.ndsu.edu/deanofstudents/>

In a crisis or emergency situation:

Call University Police: 701-231-8998

Call 9-1-1

Go to a Hospital Emergency Room

Go to Prairie St. Johns for a Needs Assessment: 701-476-7216 (510 4th St. S.)

Call the FirstLink Help Line: 1-800-273- TALK (8255) or 2-1-1

Call Rape and Abuse Crisis Center: 701-293-7273

Course Schedule

The following schedule is tentative, and I reserve the right to change it to accommodate things (blizzards, etc.) as the semester progresses. If the exam dates need to be changed, I will notify you at least one week ahead of the new exam date.

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Date	Topic	Homework Due
M 8/24	NO CLASS	-
W 8/26	L0 - Introduction, & Sig. Figs	-
F 8/28	L1 - Position & Velocity	-
M 8/31	L2 - Vectors & Motion	HW 1 Due (Tues 9/01)
W 9/02	L3 - Motion Plots & Uniform Motion	-
F 9/04	L4 - Instantaneous Velocity & Acceleration	-
M 9/07	NO CLASS – Labor Day	HW 2 Due (Tues 9/08)
W 9/09	L5 - Motion with Constant Acceleration	-
F 9/11	L6 - Free-fall	-
M 9/14	L7 - Vectors: Addition & Subtraction	HW 3 Due (Tues)
W 9/16	L8 - Ramps & Relative Motion	-
F 9/18	Exam 1	-
M 9/21	L9 - Projectile Motion	HW 4 Due (Tues)
W 9/23	L10 - Circular Motion	-
F 9/25	L11 - Forces, Identifying Forces, FBDs	-
M 9/28	L12 - Newton's 2nd & 3rd Laws	HW 5 Due (Tues)
W 9/30	L13 - Dynamics: Using Newton's 2nd Law	-
F 10/02	L14 - Mass, Weight, & Apparent Weight	-
M 10/05	L15 - Contact Forces & Drag	HW 6 Due (Tues)
W 10/07	L16 - Newton's 3rd Law: Interacting Objects	-
F 10/09	L17 - Uniform Circular Motion & Centripetal Force	-
M 10/12	L18 - Apparent Forces	HW 7 Due (Tues)
W 10/14	L19 - Catch-Up	-
F 10/16	Exam 2	-
M 10/19	L20 - Rotational Motion	-
W 10/21	L21 - Torque	-
F 10/23	L22 - Center of Gravity & Moment of Inertia	-
M 10/26	L23 - Newton's 2nd Law for Rotation	HW 8 Due (Tues)
W 10/28	L24 - Static Equilibrium	-
F 10/30	L25 - Springs & Hooke's Law	-
M 11/02	L26 - Momentum & Impulse	HW 9 Due (Tues)
W 11/04	L27 - Conservation of Momentum & Impulse	-
F 11/06	L28 - 2D Collisions & Angular Momentum	-
M 11/09	L29 - Energy & Work	HW 10 Due (Tues)
W 11/11	L30 - NO CLASS - VETERANS DAY	-
F 11/13	Exam 3	-
M 11/16	L31 - Kinetic Energy & Potential Energy	HW 11 Due (Tues)
W 11/18	L32 - Thermal Energy & Energy Conservation	-
F 11/20	L33 - Elastic Collisions & Power	-
M 11/23	L34 - Fluids, Density, & Pressure	HW 12 Due (Tues)
W 11/25	NO CLASS - THANKSGIVING BREAK	-
F 11/27	NO CLASS - THANKSGIVING BREAK	-
M 11/30	L35 - Buoyancy & Fluids in Motion	HW 1ue (Tues)
W 12/02	L36 - Fluid Dyanmics & Viscosity	-
F 12/04	L37 - Temperature, Heat, 0th Law	-
M 12/07	L38 - Efficiency, Heat Engines & Pumps, Entropy	HW 14 Due (Tues)
W 12/09	L39 - Buffer	-
F 12/11	L40 - Buffer	-
M 12/14	-	HW 15 Due (Extra Credit)
M 12/14	Final Exam - 1:00 PM – 3:00 PM	-

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