

UNIVERSITY PHYSICS I (PHYS 251) COURSE SYLLABUS

North Dakota State University, Fall 2017

I. Course Information & Description

Course Title: University Physics I; **Course Prefix & Catalog Number:** PHYS 251; **Credits:** 4 **Meeting Times & Locations:** MWF 9:30AM-10:45AM, AG Hill Center 130/132; **Prerequisites:** MATH 165

This course is the first semester of calculus based introductory physics. According to the NDSU course bulletin we will be studying:

“Newtonian mechanics of translational and rotational motion, work, energy, power, momentum, conservation of energy and momentum, periodic motion, waves, sound, heat, and thermodynamics.”

II. Instructor Information

Instructor: Brian Farlow; **Email:** brian.farlow@ndsu.edu; **Phone:** (701) 231-8977 (This is not the best way to contact me. Please use email); **Office:** South Engineering 216B; **Office Hours:** W 11:00AM-1:00PM, by appointment

III. Course Materials

- A FlipIt Physics account with access to the Classical Mechanics portion of University Physics. Go to www.flipitphysics.com and create an account. Last I checked, the cost is about ~\$40. Access to this online resource is required and will be used in this class extensively. You will be asked for a course access key. It is **PHYS251F17** (case sensitive).
- Turning Technologies clicker or clicker app. <https://www.turningtechnologies.com/> Physical clickers are available at the University bookstore.
- Any calculus-based intro physics textbook for a reference. I recommend: Fundamentals of Physics 10th Edition by Halliday & Resnick ISBN: 978-1-118-23071-8 (Hardcover) 978-1-118-54787-8 (Digital)
- Scientific or graphing calculator. A real one, not a phone or tablet app. Any device with internet access or device-to-device communication capability will not be allowed on assessments.
- Paper. You may use lined, copy paper, or engineering paper. Just have a supply with you and at the ready.

IV. Course Goals and Learner Outcomes

There are two big-picture goals I'd like to accomplish in this class. These loosely describe what I hope to aid you in as your instructor as well as what you should be shooting for as a student:

- Students will gain the pertinent background knowledge necessary to succeed in further physics, engineering, or other science coursework.
- Students will increase their scientific literacy.

Here is a sampling of the learner outcomes for this course. Upon developing these skills and abilities you will be able to demonstrate that you've met the goals just described. Notice they are scaled to cover knowledge of necessary factual information, the ability to explain the relevant concepts, and apply the knowledge and concepts to real-world situations. Thus, it will be insufficient for you to simply memorize information and problem solving processes. I will be as transparent as possible in sharing more learner outcomes with you as they become relevant.

- Define force.
- Model a physical situation with a force diagram or Free Body Diagram.
- Construct and solve Newton's Second Law equation that models a physical situation.

V. Evaluation Procedures and Criteria

Your grade will be calculated as a weighted average, with the categories listed in the bulleted list below. Overall course grade is thus calculated: $\text{Grade} = (.1)(\text{Instructional Materials Average}) + (.2)(\text{Tutorials Average}) + (.2)(\text{Homework Average}) + (.3)(\text{Mid-term and Quizzes Average}) + (.2)(\text{Final Exam Score})$

- Instructional Materials Grade (10%) – The bulk of new material instruction will be your responsibility out of class and accessed through FlipIt Physics. This score will be comprised of FlipIt PreLecture scores and in-class clicker question scores.
- Tutorials (20%) – Once or twice per week there will be a tutorial that begins in-class and will likely have a take-home portion that must be returned for a grade.
- Homework (20%) – homework is arguably the most essential piece in helping you learn how to apply your knowledge. Homework assignments will be problem based and submitted online through FlipIt Physics. FlipIt Checkpoints will also be scored here.
- Mid-term exams and quizzes (30%) – Expect two flavors of in-class, closed-book assessments. There will be frequent and brief quizzes (approximately weekly). You should also expect three mid-term exams designed to be completed in an hour each.
- Final Exam (20%) – A comprehensive final exam. Show me what you're able to do.
- Grading Scale:

A	B	C	D	F
>90.0	80.0-89.9	70.0-79.9	60.0-69.9	<60.0

*all numerical values given as percentages

VI. Attendance

Attendance will not be taken and will not directly affect grading. However there will be numerous in-class activities that will impact your grade, as well as frequent quizzes, for which you must be present to earn any credit. It is not to your benefit to miss class.

You should come to class everyday having completed all required out-of-class instructional materials posted to Blackboard, including the associated quizzes. Bring any notes and/or work done for those materials with you. In class make sure you have sufficient paper, writing utensils, and a calculator because we will be doing a fair amount of problem solving. Also be sure to bring your provided multiple choice answer card with you every day.

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.

VII. Calendar

Login to FlipIt Physics to see course calendar. Here are some important dates determined by NDSU:

Drop/Add Deadline: Aug 30

Labor Day (no class): Sep 4

Requests for Pass/Fail or Audit: Sep 11

Withdraw with W: Nov 9

Veteran's Day (no class): Nov 10

Thanksgiving Break: Nov 23-24

Final Exam: Monday, Dec 11 8:00 AM

VIII. Accommodations

Any students with disabilities or other special needs, who need special accommodations in this course are invited to share these concerns or requests with the instructor and contact the Disability Services Office as soon as possible.

IX. 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 and instructional staff members can be found at www.ndsu.edu/academichonesty.