

PHYS 1161: PHYSICS 1

Fall, 2015

Lecturer: Prof. Dmitri Krioukov

Office: 124 Dana

Email: dima@neu.edu

Lecture hours: Mon, Wed, Thu, 10:30-11:35 AM

Classroom: Shillman Hall 135

Office hours: Thu, 2:00-5:00 PM. Appointments may be scheduled for students who cannot make the official hours.

Textbook: *Physics for Scientists and Engineers*, 6th Edition, by Paul A. Tipler and Gene Mosca, W. H. Freeman. An electronic version of this book is available at WebAssign accessible under *Tools* or *Assignments* at Blackboard.

Co-requisites: PHYS 1162 (Lab) and PHYS 1163 (Recitation). To receive a grade, you must be registered for PHYS 1161, PHYS 1162, and PHYS 1163.

Course description and objectives: Physics 1 is a one-semester calculus-based physics course in Newtonian Mechanics. Students will investigate the principles of introductory physics through lectures, problem solving, and labs. Upon completion of this course, the students should have knowledge of basic physics concepts and the ability to interpret and solve elementary problems involving forces and torques, static equilibrium, motion in one, two, and three dimensions, Newton's laws, work, energy and power, momentum and collisions, rotational dynamics, special relativity, gravity, and fluids.

Course organization

Reading assignments: This syllabus contains the required reading assignments from the textbook. It is **VERY IMPORTANT** that you read and understand the material in the text before coming to class.

Homework: Homework assignments will be managed through the WebAssign system accessible under *Tools* or *Assignments* at Blackboard. Typically there will be two sets of homework per topic. The first set will typically test conceptual understanding of the reading assignment on a topic before the topic is discussed at the lectures. The second set will primarily consist of traditional quantitative problems. After submitting your homework on WebAssign, you may request the answer key to see the solutions to the homework problems.

Quizzes: There will be a 20 minute quiz almost every week. The two lowest quiz scores will be dropped and will not count toward the final grade. There will be no make-ups, so a missed quiz will receive a score of zero. Solutions to the quiz problems will be made available on Blackboard.

Examinations: There will be two midterm exams during the semester and a comprehensive final exam. Practice exam problems will be solved in class. Solutions to all exam problems will be made available on Blackboard.

Grading

Your total score will be based on six components:

Lab	15%	
Quizzes	20%	(no make-ups, 2 lowest scores will be dropped)
Homework	15%	
Midterm test 1	15%	(no make-ups)
Midterm test 2	15%	(no make-ups)
Final exam	20%	(no make-ups)

The final letter grade will be determined as follows:

Score	Grade
92-100	A
88-92	A-
84-88	B+
79-84	B
71-79	B-
68-71	C+
63-68	C
60-63	C-

Need Help?

1. Come to the office hours, Thu 2:00 – 5:00 PM at 124 Dana.
2. Talk to your Recitation or Lab TA.
3. Use the Blackboard course discussion forum to ask and discuss your course-related questions with other students who are strongly encouraged to help.
4. The Physics Workshop offers free help sessions by physics doctorate students. You can drop in at the times indicated on the Physics Workshop Schedule available at <http://www.northeastern.edu/physics/undergraduate/help-with-physics-classes/>
5. Peer tutoring by undergraduate students is available on a first-come/first-serve basis. Follow the instructions at <http://www.northeastern.edu/physics/undergraduate/help-with-physics-classes/>

Academic Integrity

Cheating, plagiarism, and other academic misconduct will be reported to the Office of Student Conduct and Conflict Resolution (OSCCR). The Northeastern Academic Integrity Policy can be found at: <http://www.northeastern.edu/osccr/academic-integrity-policy/>

Tentative Course Schedule

Week	Date	Required Reading	Week's Topic	Quiz
1	Wed, Sep 9	-	Introduction	No quiz
	Thu, Sep 10	1.1 – 1.7	Units and Vectors	
2	Mon, Sep 14	2.1, 2.2	Motion in One Dimension	Quiz 1
	Wed, Sep 16	2.3, 2.4	Motion in One Dimension	
	Thu, Sep 17	3.1, 3.2	Motion in Two and Three Dimensions	
3	Mon, Sep 21	3.3	Motion in Two and Three Dimensions	Quiz 2
	Wed, Sep 24	4.1 – 4.4	Newton's Laws	
	Thu, Sep 25	4.5 – 4.7	Newton's Laws	
4	Mon, Sep 28	4.8	Newton's Laws	Quiz 3
	Wed, Sep 30	5.1, 5.2	Applications of Newton's Laws	
	Thu, Oct 1	5.3, 5.5	Applications of Newton's Laws	
5	Mon, Oct 5	5.5	Applications of Newton's Laws	No quiz
	Wed, Oct 7	-	Review for Midterm 1	
	Thu, Oct 8	-	Midterm 1	
6	Mon, Oct 12	Columbus Day	No Classes	Quiz 4
	Wed, Oct 14	6.1, 6.2	Work and Kinetic Energy	
	Thu, Oct 15	6.3, 6.4	Work and Kinetic Energy	
7	Mon, Oct 19	7.1, 7.2	Conservation of Energy	Quiz 5
	Wed, Oct 21	7.3	Conservation of Energy	
	Thu, Oct 22	8.1, 8.2	Conservation of Linear Momentum	
8	Mon, Oct 26	8.3	Conservation of Linear Momentum	Quiz 6
	Wed, Oct 28	9.1 – 9.3	Rotation	
	Thu, Oct 29	9.4 – 9.6	Rotation	
9	Mon, Nov 2	10.1, 10.2	Angular Momentum	Quiz 7
	Wed, Nov 4	10.3	Angular Momentum	
	Thu, Nov 5	-	Review for Midterm 2	
10	Mon, Nov 9	-	Midterm 2	No quiz
	Wed, Nov 11	Veterans' Day	No Classes	
	Thu, Nov 12	R.1 – R.3	Special Relativity	
11	Mon, Nov 16	R.4 – R.5	Special Relativity	Quiz 8
	Wed, Nov 18	11.1, 11.2	Gravity	
	Thu, Nov 19	11.3, 11.4	Gravity	
12	Mon, Nov 23	12.1 – 12.3	Static Equilibrium	No quiz
	Wed, Nov 25	Thanksgiving recess	No classes	
	Thu, Nov 26			
13	Mon, Nov 30	13.1	Fluids	Quiz 9
	Wed, Dec 2	13.2	Fluids	
	Thu, Dec 3	13.3	Fluids	
14	Mon, Dec 7	-	Review for the Final	No quiz
	Wed, Dec 9	-	Review for the Final	