

**PHYS F211X General Physics I
Fall 2017**

Credits: 4.0

Lectures: REIC 201 MWF 10:30-11:30 am

Laboratory: REIC 254 F01 M 0215-0515 pm
REIC 254 F02 M 0600-0900 pm
REIC 254 F03 T 0930 am – 1230 pm
REIC 254 F04 T 0215-0515 pm
REIC 254 F05 T 0600-0900 pm
REIC 254 F06 W 0215-0515 pm
REIC 254 F07 W 0600-0900 pm
REIC 254 F08 R 0930 am – 1230 pm
REIC 254 F09 R 0215-0515 pm
REIC 254 F10 R 0600-0900 pm
REIC 253 FH1 R 0600-0900 pm

Instructor: Dr. Roman Makarevich
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Web: <http://www2.gi.alaska.edu/~romanmak/PHYS211/>

Office Hours: REIC 116 MWF 9:30-10:30 am, ELVE 708B by appointment
Additionally, a help room will be staffed to answer homework-related questions. This will be in the Physics conference room (REIC 122) and will be staffed at various times each day (the schedule is posted on the Room 122 door).

Course Content: In the first part of the course you will learn the basic language of physics including measurement and how we discuss and quantify motion. We will then move on to calculating the motion of bodies which will lead us into the wonder of Newton's 3 laws of motion. You will learn to love them (or at least learn them) and their applications to such a wide range of problems such as fair rides, space ships, skidding cars and even hanging signs. Then the course will explore energy and momentum, two of the most important and powerful concepts in the physics of motion. This will be followed by an introduction into gravitation followed by fluid mechanics. This will then lead into a discussion of waves including sound wave and such cool things as noise canceling headphones. Most importantly, you will learn to impress your friends and relatives with your knowledge of the universe (or bore them to tears), so be prepared for being introduced to "*The Power of Physics*".

Prerequisites: Concurrent enrollment in MATH F252X Calculus II. Calculus and high school physics. Algebra, trigonometry and calculus will be used extensively.

Materials Needed:

Required Text: Physics for Scientists and Engineers with Modern Physics with MasteringPhysics®, 3rd edition, by Knight © 2013, ISBN-13: 9780321736086
OR
Ebook only version with MasteringPhysics

Instructor's lecture notes. Provided via Blackboard as pdf files.

Grading: The course grade will consist of the following components (though I reserve the right to make grade adjustments based on performance trends):

Reading	10%
Lecture participation	5%
Homework	20 %
Quizzes	5 %
Labs	20 %
2 hour exams	20 %
Final exam	25 %

Reading: There will be approximately one reading assignment per week. It will be due at the beginning of every Wednesday's lecture, at 10:30 am (with the exception of Reading Assignment 1 which is due on Friday Sept 1 at 10:30 am). You will need to submit it electronically via Blackboard. Each reading assignment will cover one or two chapters from the textbook as shown on the [Calendar](#) webpage and will include both short-answer and multiple-choice questions. You will have one attempt (with exception of Assignment 1) and 1 or 2 hours to complete the assignment online. The assignment will be available via Blackboard no later than on preceding Wednesday. **No late or non-electronic reading assignments will be accepted.**

Lectures: In the course of every lecture you will be asked several questions. You will be required to answer all of them either using an ABCD voting card (which you should bring to every lecture) and/or in writing. You will be also required to participate at in-class discussions with your peers. At the end of every Fridays lecture (or Wednesdays lecture on some weeks as shown on the [Calendar](#) webpage) you will be required to submit a lecture participation answer sheet covering all questions for that week. It will be graded on all-or-nothing basis for every lecture separately. No credit may be also given if you do not vote or participate in discussions. **No late lecture answer sheets will be accepted.**

Homework: There will be approximately one homework assignment per week. The assignment will be posted on the Blackboard on Wednesdays and will be due in on the following Thursday by 5:00 pm. Place your homework in the appropriate wooden box in the Physics Department Office. You are encouraged to work with others on the homework, but make sure the paper you turn in is not simply copied from someone else. These assignments help me assess your understanding of the material, and will count toward your final grade. Only a selection of problems will be graded each week, totaling about 20-30 points each. **No late problem sets will be accepted.**

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Quizzes: 4 short quizzes will be given in class during the semester. They will be closed book. All difficult formulas needed will be given and the quiz will be similar to some of the recent homework or topics covered in class. The quizzes will be announced in class and on the schedule page at least one week in advance.

Diagnostic/Exam Practice Quizzes: 3 longer quizzes will be given during semester: one at the beginning (Wednesday, August 30, 2017) and two at the end (Wednesday, November 29 and Wednesday December 6). These three quizzes are for diagnostic and exam practice purposes and will be counted as bonus points.

Labs: There is a lab associated with this course. Labs may only be made up if excused and with permission of the course instructor. Questions about the lab should be directed to the teaching assistant in charge of your lab. **ALL labs and reports must be completed to get a passing grade for the course.**

Hour Exams: 2 exams will be given during the Friday lecture as follows:

October 6, approximately Chapters 1-5
November 10, approximately Chapters 6-11

The exams will be closed-book, but you will be given most of the needed equations. The exams will be graded and handed back as soon as possible.

Final Exam: The final exam will be at 10:15 am - 12:15 pm, Wednesday, December 13, 2017. It will cover the entire course (Chapters 1-15, 20), with some emphasis on the more recent material. The final will be closed-book, but you will be given most of the needed equations.

Every student will obtain a raw score out of 100%. I assign letter grades based on raw scores and a curve developed for this class. From experience, a raw score above 90% will be at least an A, above 80% will be at least a B, above 70% will be at least a C, above 60% will be at least a D. No +/- grades will be given with a possible exception of A+,A-, and B+.

Instructor-Initiated Withdrawals: Any time from Friday, September 29 to and including Friday, November 3, the professor will exercise the right to withdraw a student from PHYS F211X for any of the following reasons: (1) Exam I is missed without an excused absence, or (2) two or more labs are missed, or (3) less than half of the homework assignments are submitted, or (4) the current cumulative grade for reading assignments is less than 50% and the current cumulative grade for lecture participation is less than 50%. This is this class's definition of "...has not participated substantially in the course."

Absences and Make-Up Tests and Assignments:

Make-up tests will be allowed for legitimate reasons, which you **must discuss** with the professor. An unexplained absence from a test results in a zero. If you anticipate an absence (intercollegiate sports, travel on military or University business), talk to your professor before the test to make arrangements. If the absence is unexpected (illness, family or personal calamity, cold weather transportation difficulty), talk with the professor at the earliest possible opportunity. Come prepared to document your particular calamity. In any case, you must take the make-up test as soon as possible of your return to health. If you are to take a make-up test/assignment, we expect that you have no knowledge of the original test/assignment.

Reading: There will be no make-up reading assignments. You will be allowed up to 2 zero scores for weekly reading assignments without penalty, to take into account the (hopefully few) days you miss class for legitimate reasons.

Lectures: Make-up lecture participation questions cannot be given. You will be allowed up to 1 zero score for weekly answer sheets without penalty.

Homework: No make-up assignments will be given. You will be required to submit a homework solution **on or earlier than** the due date in any case. If you anticipate an extended absence (more than 1 week) for a legitimate reason, talk to the professor to make alternative arrangements.

Quizzes: No make-up quizzes will be given. Talk to the professor to make alternative arrangements. Typically you will be required to submit solutions to a selection of problems from relevant chapters (covered in that quiz) within 2 weeks.

Labs: There will be one week at the end of semester dedicated to make-up labs. You must talk to your TA and the Physics Lab Supervisor to make the necessary arrangements. You must complete all the labs in order to pass this course.

Hour Exams: Talk to the professor to make the necessary arrangements if you miss the test for a legitimate reason.

Final Exam: An incomplete grade may be given in some situations as governed by the University regulations. You will be required to take a final test at the time agreed.

Special Needs: The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. We will work with the Office of Disabilities Services to provide reasonable accommodation to students with disabilities.

Plagiarism: Plagiarism and cheating are matters of serious concern for students and academic institutions. This is true in this class as well. The UAF Honor Code (or Student Code of Conduct) defines academic standards expected at the University of Alaska Fairbanks which will be followed in this class. (Taken from the [UAF plagiarism web site](#), which has many links with good information about this topic)

Complaints and Concerns: You are always welcome to talk to me about anything, however, if you have a non-subject matter question or concern that cannot be resolved by me, contact the department chair, Dr. Renate Wackerbauer, Physics Department Office, Room REIC 106.

Alternate References: To see the same topics explained differently, try the following:
Physics for Scientists and Engineers, Serway and Jewett.
Fundamentals of Physics, 8th edition, Halliday Resnick and Walker.

General Advice: Physics is something you learn by doing. You can benefit the most from this course if you follow this study procedure:

1. Download and print the instructor's lecture notes and/or use the textbook.
2. Read through the chapter(s).
3. Complete the reading assignment.
4. Come to lectures and **actively** participate. Importantly, discuss with your peers the answers to the posed questions when asked by the instructor.
5. Listen carefully to the instructor and take notes or annotate the printed notes.
6. After lecture, start working homework problems, going back to clarify points as they come up.

Think! Don't simply try to fit the problems into the form of another problem, think about the problem first.