

Syllabus

UNIVERSITY PHYSICS 211x Fall 2023

4 credits

Calculus-based physics course with weekly assignments (quizzes, homework and labs)

Instructor: Dr. Michael M. Hull

Office: In the Physics Department: Rm 120 REIC. Tel. 907-474-6106 Tel. 474-7339 (Physics office)

Email: mmhull2@alaska.edu. Please allow two business days for a response.

Office Hours: Physics Dept. (Rm. 120): Thursday 10:00-noon (hybrid, online option via Zoom)

Lab TA

TBD

Office: TBD

TA office hours

[https://docs.google.com/document/d/1QaoyM4ng0xhzVo2I7KIMShfPOWCgu5R0Az4YxnHSeA/edit?usp=share link](https://docs.google.com/document/d/1QaoyM4ng0xhzVo2I7KIMShfPOWCgu5R0Az4YxnHSeA/edit?usp=share_link)

Weekly Homework Help Sessions: We will hold Online Help Sessions via Zoom. On campus, you can drop by my office and/or make an appointment. The Physics Department also holds Homework help sessions in the Physics conference room (REIC 122). The schedule is here:

[https://docs.google.com/document/d/1R4HMyHcyRH1mo0G06uekHsrAixLoEITgIXGZ8xrmW48/edit?usp=share link](https://docs.google.com/document/d/1R4HMyHcyRH1mo0G06uekHsrAixLoEITgIXGZ8xrmW48/edit?usp=share_link)

Lectures: REIC 201/Mondays, Wednesdays, and Fridays, 10:30 am - 11:30 am

Web Connection: UAF Canvas

Homework: TheExpertTA (<https://theexpertta.com/>)

COURSE SPECIFICS:

Prerequisites: Calculus and high school physics. Algebra, trigonometry and calculus will be used extensively.

Course Content:

Physics 211 is a very fast paced course which will cover chapters 1-17 in the free online OpenStax Physics text (<https://openstax.org/details/books/university-physics-volume-1>). The course emphasizes critical reasoning and sensemaking in physics. The topics covered and tentative schedule is as follows:

Due Friday at 23:59	HW #	Homework due on these chapters	Quiz / Exam
9/1/2023	1	1 and 3: Kinematics	
9/8/2023	2	2 and 4: Two-dimensional kinematics	Quiz 1 on Chapters 1 and 3
9/15/2023	3	5: Newton's laws of motion	Quiz 2 on Chapters 2 and 4
9/22/2023	4	6: Friction and drag	Quiz 3 on Chapter 5
9/29/2023			MT1 on Chapters 1-6
10/6/2023	5	7 and 8: Work and energy	
10/13/2023	6	9: Linear momentum	Quiz 4 on Chapters 7 and 8
10/20/2023	7	10 and 11: Rotation	Quiz 5 on Chapter 9
10/27/2023	8	12: Elasticity	Quiz 6 on Chapters 10 and 11
11/3/2023			MT2 on Chapters 7-12
11/10/2023	9	13: Gravitation	
11/17/2023	10	14: Fluids	Quiz 7 on Chapter 13
12/1/2023	11	15: Oscillations	Quiz 8 on Chapter 14
12/8/2023	12	16 and 17: Waves and sound	Quiz 9 on Chapter 15
12/13/2023			Final exam

Materials Needed:

Required Text: *OpenStax Physics (free)*

Calculators: You will need a calculator for homework and exams. Note that exams are closed-book, and calculators may only be used for mathematical manipulations.

Participation: Research has shown that students learn very poorly from watching lectures, regardless of how coherent or interesting those lectures may be. Learning happens through active involvement in learning, and effective lectures include frequent "breaks" in which students respond to the content. In this course, students will engage by responding to ConcepTests interspersed in the lectures. To participate in these discussions will require students to prepare for class ahead of time by reading the textbook. To encourage students to do this reading, 3% of the course grade will come from completion of short online reading-based assignments to be taken before class.

Homework: The homework is web-based and accessed through TheExpertTA (<https://theexpertta.com/>). Homework will be due once a week on Friday (at 11:59PM). Solutions are released by ExpertTA immediately after the due date; consequently **NO LATE HOMEWORK WILL BE ACCEPTED.**

Note: Working in study groups on the homework is encouraged, but take care that you walk away with a personal understanding that you will be able to demonstrate on the quizzes and exams (which are taken individually).

Quizzes: There will be an online quiz due together with homework on many Fridays. You will have 30 minutes to complete each quiz. These quizzes will be administered via Canvas. You may use a provided equation sheet and your calculator for mathematical manipulation on the quizzes, but are otherwise to take the quizzes alone without other assistance. The primary goal of these quizzes is to identify course content that you are struggling with, so you can better prepare for the exams.

Exams: All exams are closed book and will be proctored online via HonorLock. If you are in a location with unsteady internet, you may use an in-person proctoring similar to eCampus' Testing Services (for example, you might ask your public library). Like with the quizzes, you may use a provided equation sheet and your calculator for mathematical manipulation on the exams, but are otherwise to take the exams alone without other assistance. Violation of this constitutes a breach in the UAF Honor Code and will be dealt with appropriately. Exams will include mostly problems with some short answer and multiple choice. They will cover concepts and examples from the text, lecture material, homework problems, recitation problems and laboratory exercises. Solutions to exams will be posted on Canvas.

Exam Dates:

MidTerm Exam 1 (MT1): Sept. 29th (covering Chapters 1-6 tentatively)

MidTerm Exam 2 (MT2): Nov. 3rd (covering Chapters 7-12 tentatively)

Final Exam: Wednesday Dec. 13th: Roughly 1/2 covering chapters 1-12 and the rest covering chapters 13-17)

Each exam will last two hours. You may take the exams at any point during the designated days.

Laboratory: There is a lab associated with this course. ALL labs and reports must be completed to get a passing grade for the lab.

A PASSING GRADE IN THE LAB IS NECESSARY TO PASS THE 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 or as a last resort me.

Grading:

Grades given will be on a five step A-F scale (with + /- grades assigned if appropriate) The final, cumulative scores will be curved and final grades assigned on that basis, however, a final percentage score of 90% or above will be at least an A-).

Midterm Exam 1	15%
Midterm Exam 2	15%
Quizzes (9)	20%
Final Exam	20%
Homework (12)	12%
Pre-reading	3%
Lab (12)	15%
Total	100%

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 work with the Office of Disabilities Services (203 WHIT, to 474-7043) to provide reasonable accommodation to students with disabilities.

Plagiarism and Cheating: Plagiarism and cheating are matters of serious concern for students and academic institutions. I take it seriously as well. Quizzes and Exams are to be your work ONLY! with no help from others or online resources. The UAF Honor Code (Student Code of Conduct) defines the academic standards expected at UAF and is adhered to in this class as well.

Complaints and concerns: I encourage you to talk to me about concerns you have with the class etc., however, if the situation warrants, you can contact the Physics Department Chairman, Dr. Martin Truffer at mtruffer2@alaska.edu or 474-5359.

Last Day to Drop this Class (refunded, course does not appear on academic record): Sept. 8

Last Day to Withdraw from this Class: Nov. 3