

## Syllabus

COLLEGE PHYSICS 124x Spring 2023

4 credits

Online asynchronous 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](mailto:mmhull2@alaska.edu)

Office Hours: Physics Dept. (Rm. 120): TBA (ONLINE via Zoom)

Lab TA

**Pralhad Itani:** [pitani@alaska.edu](mailto:pitani@alaska.edu)

Office: RM 128 REIC

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

### COURSE SPECIFICS:

Prerequisites: Physics 123 or equivalent, or permission of the instructor (me).

### Course Content:

Physics 124 is a very fast paced course which will cover chapters 18-34 in the free online OpenStax Physics text (<https://openstax.org/details/books/college-physics>). 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
1/27/2023	1	18: charge and electric field	
1/27/2023	2	19: electric potential	
2/3/2023	3	20: Ohm's Law	Quiz 1 on Chapters 18+19
2/10/2023	4	21: circuits with resistors	Quiz 2 on Chapter 20
2/17/2023			MT1 on Chapters 18-21
2/24/2023	5	22: Magnetism	
3/3/2023	6	23: EM induction and AC circuits	Quiz 3 on Chapter 22
3/10/2023	7	24: EM waves	Quiz 4 on Chapter 23
3/17/2023	8	25 and 26: Geometric optics, lenses and mirrors	Quiz 5 on Chapter 24
3/24/2023			MT2 on Chapters 22-26
3/31/2023	9	27: Wave optics	
4/7/2023	10	29: Quantum physics	Quiz 6 on Chapter 27
4/14/2023	11	30: Atomic physics	Quiz 7 on Chapter 29
4/21/2023	12	31 and 32: Radioactivity and Nuclear Physics	Quiz 8 on Chapter 30
4/28/2023	13	33 and 34: Particle Physics and Beyond	Quiz 9 on Chapter 31+32
5/2/2023			Final exam

Although you will not be assessed on Chapter 28 (special relativity) in class, resources will be provided to students who request them for independent learning.

### Materials Needed:

Required Text:

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 will be posted on Canvas shortly 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

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)	15%
Final Exam	25%
Homework (13)	15%
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.