Physics 10 - Intro to Physics

with textbook based on openstax™ College Physics

Course Overview

Course Code and Semester: **Physics 10, Class Number 20827, Spring 2021**
Course Description: Elementary introduction to the field of physics: Mechanics, heat, electricity and magnetism, sound, optics, and modern physics. (Satisfies COA AA/AS area 1; CSU area B1; contact the instructor regarding UC transferability of this course)
Recommended Preparation: Math 201 (elementary algebra) or Math 202 (geometry)

Who should take this course?

- Non-science major students who need to satisfy a physical science *without lab* requirement.
- Intended physics and engineering major students, if they have no prior exposure to physics (high school physics class or general knowledge) and/or if they are not ready to take Physics 4A yet.
- Students who want to see all the topics covered in study of physics in one semester.

If you need to satisfy "physical science with lab" requirement, please contact the instructor; we offered the Physics 10L lab course, for the first time in Spring 2019 (so that Physics 10 and Physics 10L together will satisfy "physical science with lab" requirement), and we are hoping to offer it again soon. As always, please check with your transfer institution, to ensure that this course meets the requirements of their program.

Student Learning Outcomes

1. Using written language, students explain and discuss the physics concepts listed in the course content, and apply them to everyday phenomena and interdisciplinary examples.
2. Students apply simple formulas to calculate measurable quantities that describe the physical environment related to the concepts of physics.
3. Students explain and discuss physical principles underlying classroom demonstrations.

Instructor Information

Hi! My name is **Andrew Park**. The best way to contact me for course-related matters is through Canvas **Conversations** (https://peralta.instructure.com/conversations) tool (for non-course matters, best way is by email: **bpark@peralta.edu** (mailto:bpark@peralta.edu)). You will hear from me regularly throughout the semester, usually through the **Course Announcements** (https://peralta.instructure.com/courses/37858/announcements) . If you need to talk (rather than write) to me, please see office hour information below.

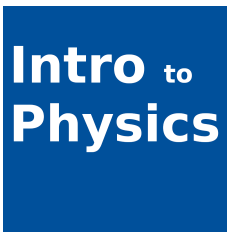
Office Hours

There are two office hours to be scheduled for this class. One office hour will be used for an online virtual class session (tentatively scheduled for Thursday 6 to 7 p.m. by Zoom). Most of the virtual class session is recorded and shared with the class for asynchronous access.

One additional office hour is scheduled on Mondays from 3 to 4 p.m. To make use of the office hour, come to my ConferZoom room (**https://cccconfer.zoom.us/my/bpark** (https://cccconfer.zoom.us/my/bpark)) during the office hour. You can also email/message me, if you are not able to join Zoom meeting.

For appointments outside of regularly scheduled office hours, please email me to arrange for the time. I usually respond to emails within 24 hours, and often sooner. And during my regularly scheduled office hours, I will respond to emails within minutes.

Course Materials



Great news! Your course material is free! All necessary course materials are provided free of charge digitally. We are using a version of textbook derived from OpenStax College Physics (pared down to fit into one semester). You can access your textbook in following ways:

- Access it **online on CNX.org** (https://cnx.org/contents/WPust2k9) (this is always the latest version).
- Download **PDF** (https://peralta.instructure.com/courses/37858/files/3073824/download?wrap=1) (https://peralta.instructure.com/courses/37858/files/3073824/download?download_frd=1) (this is version 12.1, size 105 MB).

Your other course materials, including homework assignments, are available on the **course Canvas site** (https://peralta.instructure.com/courses/37858/assignments/syllabus).

Important Notes

Grading Contract

This is something I started experimenting with last year, and I think it is particularly relevant during COVID-19, when traditional methods of assessments such as exams become much less reliable (primarily because I, as instructor, cannot control the exam conditions as well as I need to).

In **contract grading** (https://en.wikipedia.org/wiki/Contract_grading), rather than attempting to associate an overall percentage to the letter grades I will assign (with different weights for homework, exam, etc.), we list the conditions you need to meet in order to earn each of the grades (A, B, or C, for passing grades). There is an element of clear communication of expectations, and flexibility according to circumstances (I am open to negotiating your contract on individual basis).

For full description, please see **Physics 10 Grading Contract** (https://peralta.instructure.com/courses/37858/pages/physics-10-grading-contract) (may need to unlock Module requirements to access the page).

ADA Accommodation

Students who may need accommodation for their disabilities are encouraged to contact **Disabled Students Program and Services** (http://alameda.peralta.edu/dsps/) (please check the **program website** (https://alameda.peralta.edu/student-service/dsps/) for program contact information) as soon as possible in the semester so that reasonable (and *legally-mandated*) accommodations may be made. Usual accommodations made include extended exam time and/or transcription service. Most students with a diagnosed learning disability (such as ADHD or ADD) are eligible. If you are not sure whether you are eligible, please check with a DSPS counselor. The details regarding the nature of your disability are confidential and not shared with your instructor.

Instructor's personal note: In my experience, many students who should have *utilized DSPS service do not use them and suffer consequences academically. The goal of DSPS (and ADA in general) is that you should be judged on your* ability, *not disability. For those students who are eligible, DSPS accommodation is what will help you express your full potential (not a special treatment or something to be stigmatized against).*

Talk to a DSPS counselor today; the worst that can happen is they will tell you you are not eligible and you wasted a little bit of time.

Tutoring and Academic Support

For tutoring support during COVID-19, please check **Learning Resources Center** (https://alameda.peralta.edu/student-service/learning-resource-center/) website for access information.

Additional online tutoring may also be available through Online Tutoring link in Canvas course sidebar. Please let me know if there are any issues in accessing any of these academic support services, so that I can help.

Preferred Names and Pronouns

Please help me refer to you in the way you prefer by completing following two things at the beginning of the semester:

- **[GRADED DISCUSSION] Introduce Yourself** (https://peralta.instructure.com/courses/37858/discussion_topics/536376) (also accessible from Modules, may need to complete Module requirements to access)
- Name Coach entry (see Canvas course sidebar).

I will always do my best to pronounce your name correctly and refer to you with respect. Please help me do that by correcting me if I mispronounce your name—or any other mistakes I may make unwittingly in how I refer to you.

Tips for Success in Physics 10 Online

Follow these advices to maximize your chance of success in this class.

First, here's a little bit on my grading approach. My goal in grading is to reward two things: (1) the effort you put into this class, and (2) your understanding and knowledge of physics. For those just wanting to pass this class, I have a good news: *my goal* is to pass every student who stays engaged with the course to the end of the semester.

But what about those who want to get a B or an A in this class?

Here's what I recommend for those who want to put in the effort:

- First, realize that this *online* class requires more self-discipline and integrity, as well as a level of comfort with technology, than face-to-face classes do. Set aside a time to regularly work on the assigned readings and problems, and be proactive in contacting me if you have any issues with Canvas, or any other technologies being used for the class. (Read more: **Orientation to Online Learning** (https://peralta.instructure.com/courses/37858/pages/orientation-to-online-learning))
- Second, make sure the line of communication is open. Most course announcements are made through **Canvas Announcement** (https://peralta.instructure.com/courses/37858/announcements) . Check your **Notification settings** (https://peralta.instructure.com/profile/communication) to make sure you receive timely notifications.
- Lastly, make use of all the resources being made available in the course. To make up for the lack of face-to-face interactions, lecture videos are posted for key topics and exercises, questions maybe posed in graded discussions, and peer-graded essay assignments are designed around multimedia learning material.

I believe it is possible not only for every one of you to pass this class but also for everyone to do so with a grade of B or better—all that is needed is for you to have a little bit of self-discipline and to put in a consistent effort.

Calendar and Assignments

This online course syllabus is hosted on Canvas which makes the calendar and assignments available to you at one glance. Please look on your right for the calendar of assignments and course events (or go to your **Canvas Calendar** (https://peralta.instructure.com/calendar) ; make sure content from this course is displayed), as well as weighting of assignments for your course grade. Please look below for summary of course assignments. Fine-print details are below—I encourage you to read through them (this is our contract for the semester), but I will remind you of anything that is important.

The Fine Print - Course Policies

Please read on for the full listing of course policy. If you would rather skip it, that is fine; I will remind you of anything that is important.

- **Registration**: After the last day to register for classes (see **academic calendar** (https://web.peralta.edu/admissions/category/academic-calendar/)), you must be registered in the class in order for you to receive credit. No students can be added after this date.
- **Attendance**: This is an online class and no face-to-face class attendance is required. *However*, students who miss assignments due in the first week will be dropped from class as "no show". Also, instructor may drop a student if the student misses an excessive number of assignments without excuse. (See pg. 30 of **College of Alameda 2020-2021 catalog** (https://alameda.peralta.edu/wp-content/uploads/2020/06/CoA_Catalog_2020_fast_web.pdf) for the college policy on attendance for face-to-face classes, which this is modeled after.)
- **Academic Integrity**: Everything you turn in must be your own work. If you use sources other than those provided in the course, please clearly cite it and give credit where it is due. Allowing another student to copy your own work also constitutes academic dishonesty. Please refer to pg. 305-310 of **College of Alameda 2020-2021 catalog** (https://alameda.peralta.edu/wp-content/uploads/2020/06/CoA_Catalog_2020_fast_web.pdf) for the college policy on academic dishonesty and possible disciplinary measures.

- **Honor Code Pledge**: You must complete honor code pledge (accessible within the first few course Modules) to continue in this class. Students who do not maintain their honor code pledge may become ineligible to participate in certain course activities or be required to complete activities in a format that allows a greater degree of monitoring by the instructor.
- **Schedule Subject to Change**: Assignment and exam schedules are subject to change. Any changes will be announced through Canvas.
- **Late Assignments**: All assignments are due on the date noted. Canvas will accept late submissions on essay or discussion assignments (the instructor reserves right to grade late submissions in appropriate cases). MyOpenMath assignments must be extended using a "late pass". Twelve late passes are given at the beginning of semester, and each late pass extends a MyOpenMath assignment deadline by 72 hours. Exams will be extended only in rare circumstances arising out of a situation beyond the student's control.
- **Allowed/Prohibited Items During Timed Assessments (open book)**: Certain assessments are timed and are used similarly as "exams" in face-to-face classes. Following is the description of what you may use and what you may not use during these assessments.
  - Allowed: calculators, foreign language dictionaries, any material that is provided in the context of the course (usually through Canvas), and the means used to access the assessment.
  - Prohibited: any outside help, including but not limited to: (a) any individual other than the instructor providing help during the exam, (b) external websites, unless they are used purely for calculation function, and (c) external references, either in digital or paper-bound format, other than those allowed above.
- **Holistic Grading Rubric**: A holistic grading scale is used for grading essay questions on the exam
  - 5 (out of 5 points possible): "Excellent understanding." The student clearly understands underlying concepts; one or two minor reasoning mistakes can appear on a "5" solution, if they don't lead to larger conceptual errors.
  - 4: "Good understanding." The student understands the main concepts and problem-solving approaches but is missing one major concept, or made one major mistake that may involve conceptual misunderstanding.
  - 3: "Fair understanding." The student remembers some basic concepts but needs to include and integrate several additional major concepts in their reasoning.
  - 2: "Poor understanding." The student mentions some laws and principles from memory that may be relevant but shows little understanding of how they are relevant.
  - 1: "No understanding." The student writes down something that may (or may not) be relevant.
  - 0: "Blank." Blank answers.
- **Course Grading Contract**: This course uses **contract grading** (https://en.wikipedia.org/wiki/Contract_grading). Please review the "default grading contract" in (https://peralta.instructure.com/courses/37864/pages/physics-4c-grading-contract) **Physics 10 Grading Contract** (https://peralta.instructure.com/courses/37858/pages/physics-10-grading-contract) and understand what you need to earn an A, B, or C. Please reach out to the instructor with any questions about the default grading contract or if you wish to amend particular provisions for you, by mutual agreement between you and the instructor.
- **List of Topics**: Textbook: ***Introduction to Physics*** *(https://cnx.org/contents/WPust2k9)* by Andrew Park (derived from *Concepts of Physics* by Bobby Bailey, which is derived from *College Physics* by OpenStax)
  - Chapter 1: Introduction
  - Chapter 2: Kinematics
  - Chapter 3: Dynamics
  - Chapter 4: Work and Energy
  - Chapter 5: Impulse and Momentum
  - Chapter 6: Oscillations and Waves
  - Chapter 7: Rotation
  - Chapter 8: Fluids
  - Chapter 9: Thermal Physics
  - Chapter 10: Electricity
  - Chapter 11: Magnetism
  - Chapter 12: Light
  - Chapter 13: Quantum Mechanics
  - Chapter 14: Special Relativity
  - Chapter 15: Nuclear and Particle Physics

  We are skipping some sections but all chapters are covered, and most of the sections are covered in timed assessments. The homework exercises and review problems are most indicative of the level of details at which each chapter is covered.