

## PHYSICS 2A: GENERAL PHYSICS I

### COURSE AND INSTRUCTOR INFORMATION:

Semester: Fall 2021  
Title: General Physics I  
Units: 4.00 CEUs  
Hours: 3 lecture, 2 lab hours  
Time: Lecture Asynchronous, Lab 5:00 – 7:50 PM Thursday  
Location: Hybrid; Lecture 100% Online, Lab PHY 70  
Instructor: Kylee Jo Ford  
Email: [kylee.ford@reedleycollege.edu](mailto:kylee.ford@reedleycollege.edu) (Please give me 24 – 48 hours to reply)  
Office Hours: Virtual and by appointment/email/Zoom only

COURSE DESCRIPTION: Study of mechanics, properties of matter, heat, sound, and waves.

PREREQUISITS: Math 4A. Advisories: English 1A or 1AH.

### STUDENT LEARNING OUTCOMES:

- ✓ Improve mathematical skills through the process of applying mathematics to the physical world.
- ✓ Learn fundamental laboratory techniques.
- ✓ Experience the interaction between theory and experiment in scientific investigation.
- ✓ Learn to solve basic problems in classical mechanics.
- ✓ Study important properties of matter.
- ✓ Study the laws of fluid mechanics.
- ✓ Learn to solve problems in oscillatory motion.
- ✓ Learn the basic concepts of mechanical waves.

### REQUIRED COURSE MATERIALS:

- Textbook: College Physics <https://openstax.org/details/books/college-physics>

### Other Materials:

- iPad or Tablet: Lots of students these days are using iPads and tablets, which are great because your work can be written digitally and uploaded immediately instead of having to take pictures or scan your work, expensive though.
- Traditional pencil and paper: You definitely need to write out your notes and your work (I also recommend making a notebook of your homework solutions) so if you don't have access to a tablet, pencil and paper are great! I personally use blank white paper, but graph paper, engineering paper, or lined paper are just fine.

- Scientific Calculator: A calculator is a nice tool to have and to be comfortable with. But there are other programs you can use when doing your homework such as:
  - <https://www.wolframalpha.com/>
  - <https://www.mathsisfun.com/quadratic-equation-solver.html> (Links to an external site.)
  - You can't use these other programs on the exam though, so practice using a calculator!

#### ATTENDANCE/PARTICIPATION:

It is important to watch videos uploaded, as this will be the lecture portion. I will be taking attendance through Canvas and participation through the discussion boards. Lab attendance is mandatory.

#### PROGRESS QUIZZES:

Each week there will be a Progress Quiz due (unless otherwise stated on the schedule). These quizzes are based on the lecture videos for the week.

#### DISCUSSION BOARDS:

Each week there will be a Discussion Board due (unless otherwise stated on the schedule). The discussions will vary from week to week on topic.

#### HOMEWORK:

Homework should be done by Thursday at 5 PM to be turned in at the beginning of lab, unless otherwise noted. You must do the homework on paper with pencil.

If any circumstances change, you will need to upload the homework on Canvas as either a **PDF** or **WORD** document. Any other format will not be accepted.

#### LABORATORY REPORTS:

Lab reports will be done in class. Explanations to come.

#### EXAMS:

There will be two midterm exams and one cumulative final. They will be based on lecture, quizzes, discussions, homework, and labs.

#### COURSE POLICIES:

Late work and make-up work policy:

No late work will be accepted unless the student has a compelling reason AND has reached out to the instructor beforehand. Instances of granting exceptions after a deadline will only occur if you have a DOCUMENTED serious and compelling reason. Missing the final exam may result in a failing grade for the course.

Zoom:

This course requires the use of Zoom, which is a video and web conferencing program that can be used for any type of online meeting. Zoom functionality includes synchronous (live) or asynchronous (pre-recorded) lectures, online class meetings, virtual office hours, student presentations, etc. For additional details and guidelines on using Zoom, review the Zoom at <https://support.zoom.us/hc/en-us/articles/201362193-Joining-a-Meeting>.

GRADING:

Weighted Grades:

<b>Discussion Boards/Participation</b>	10%
<b>Homework</b>	20%
<b>Progress Quizzes</b>	10%
<b>Laboratory</b>	20%
<b>Midterm Exams</b>	20% (10% each exam)
<b>Final Exam</b>	20%
<b>Total</b>	100%

Grading Schema:

Grade	Percentage
A	90.0 – 100.0%
B	80.0 – 89.99%
C	70.0 – 79.99%
D	60.0 – 69.99%
F	<60.0%

See below for the schedule.

\*Note: the syllabus is subject to change.

Module Date	Module Topic	Deliverable (Homework, Quizzes, Labs, Exams)
8/9 - 8/15	Module 1 – Welcome Module; Nature of Physics; Math Review and Units (Ch. 1)	Q 1 – Syllabus, Units, Math Review D 1 – Introduce Yourself
8/16 - 8/22	Module 2 – Kinematics: Motion in 1 Dimension (Ch. 2)	Lab 1 – Introduction to Motion HW 1 Q 2; D 2
8/23 - 8/29	Module 3 – Kinematics: Motion in 2-D (Ch. 3)	Lab 2 – Vector Addition, Projectile Motion HW 2 Q 3; D 3
8/30 - 9/5	Module 4 – Dynamics / Newton's Laws (Ch. 4)	Lab 3 – Force, Acceleration, and Velocity HW 3 Q 4; D 4
9/6 - 9/12 <i>*Labor Day 9/6*</i>	Module 5 – Newton's Laws: Friction, Drag, and Elasticity (Ch. 5)	Lab 4 – Friction HW 4 Q 5; D 5
9/13 - 9/19	<b>Midterm Exam 1</b>	Lab 5 – Forces Study Guide (Must Do and Turn in)
9/20 - 9/26	Module 6 – Uniform Circular Motion and Gravitation (Ch. 6)	Lab 6 – Gravitation (PhET) HW 5 Q 6; D 6
9/27 - 10/3	Module 7 – Work, Energy and Energy Resources (Ch. 7)	Lab 7 – Conservation of Energy HW 6 Q 7; D 7
10/4 - 10/10	Module 8 – Linear Momentum and Collisions (Ch. 8)	Lab 8 – Conservation of Momentum HW 7 Q 8; D 8
10/11 - 10/17	Module 9 – Statics and Torque (Ch. 9)	Lab 9 – Torque (PhET) HW 8 Q 9; D 9
10/18 - 10/24	Module 10 – Rotational Motion and Angular Momentum (Ch. 10)	Lab 10 – Rotation HW 9 Q 10; D 10
10/25 - 10/31	Module 11 – Oscillatory Motion and Waves (Ch. 16)	Lab 11 – Simple Harmonic Motion HW 10 Q 11; D 11
11/1 - 11/7	<b>Midterm Exam 2</b>	Lab 12 – Waves Study Guide (Must Do and Turn in)
11/8 - 11/14 <i>*Veterans Day 11/11*</i>	Module 12 – Fluid Statics (Ch. 11)	Lab 13 – Archimedes' Principle HW 11 Q 12; D 12
11/15 - 11/21	Module 13 – Temperature, Kinetic Theory, and Gas Laws (Ch. 13)	Lab 14 – Gas Laws HW 12 Q 13; D 13
11/22 - 11/28 <i>*Thanksgiving Break 11/25-11/28*</i>	Module 14 – Heat and Heat Transfer Methods (Ch. 14)	HW 13 Q 14; D 14
11/29 - 12/5	Module 15 – Thermodynamics (Ch. 15)	Study Guide (Must Do and Turn in) Q 15; D 15
12/6 - 12/10	<b>Final Exam</b>	