

## Physics II

*“Natural science does not simply describe and explain nature; it is part of the interplay between nature and ourselves; it describes nature as exposed to our nature of questioning.”*

**-Werner Heisenberg**

### Course Description

Welcome to Physics II, where we will lay the foundation for you to understand more deeply the behavior of matter, energy, and fields in vibrations and waves, electricity and basic electric circuits, magnetism, light and optics, and atoms and their nuclei. The physics you learn this year should spark your imagination to envision things in the natural world that might not have entered your mind until now. While the journey requires the hard work of reasoning, I hope you will enjoy the journey as we explore what Niels Bohr referred to as “the development of methods of ordering and surveying human experience.”

### Topics of Study

#### First Semester

Chapter 11: Vibrations and Waves

Chapter 12: Sound

Chapter 16: Electric Charge and Electric Field

Chapter 17: Electric Potential

#### Second Semester

Chapter 18: Electric Currents

Chapter 19: DC Circuits

Chapter 20: Magnetism

Chapter 22: Electromagnetic Waves

Chapter 26: The Special Theory of Relativity

### Daily Course Materials

The Textbook is *College Physics: Principles and Applications, 6<sup>th</sup> Edition, Douglas Giancoli*

Notebook and/or folder with paper are necessary. Graph paper is recommended as an addition to lined paper.

A TI-83 or TI-84 variant Calculator is necessary. It needs to be a graphing calculator! **Do not** use a TI-89 or symbolic graphing calculators.

Access to a Computer, Printer, and Spreadsheet Software (Excel, Numbers, Google Sheets, etc.)

## Physics II

### Policies and Procedures

This is not an exhaustive list of all policies and procedures.

- Please use the restroom before class or inform me at the beginning of class to go
- Line up outside the classroom and stop all conversations when class begins
- Have all of your classroom materials when entering the class
- Conduct yourself with respect, courtesy and patience
- No food or drinks allowed in class, aside from a sealed water bottle
- Do your own work on every assignment. Cheating of any kind will not be tolerated
- Absences will strongly affect your ability to do math, try your best to be in class and on time
- If you are absent or miss class, it is your responsibility to gather the assignments and notes for your fellow students, so be good and responsible friends!
- Adhere to the school Honor Code

### Grades

- In Class Participation (25%)
- Tests and Quizzes (35%)
- Homework (10%)
- Lab Assignments (30%)

Sense of wonder and depth of inquiry will have an effect on all of your grades. To achieve full credit, you must show a sense of wonder and depth of inquiry. This is achieved by having a positive attitude, asking quality questions, good effort on assignments and trying your best.

### Assessments

Quizzes can be *formative* and weighted as Homework for grading purposes, and they can be *summative* and weighted as Quizzes and Tests. Formative quizzes are designed to provide you with feedback about how your learning is going during a course of instruction. They may be given without notice. Likely points of difficulty are probed to see if specific, basic ideas have been understood. Summative quizzes, on the other hand, are like short tests; they are designed to test your understanding *after* a course of instruction has been completed and will be advertised in advance.

Each unit of instruction ends with a test. Usually, the units of instruction correspond to the chapters in the textbook. The tests usually include multiple-choice items and free response

## Physics II

questions that provide an opportunity for you to use the ideas you have learned. There are also often test questions related to the experiments that we have done. Students will be given notice of an upcoming test at least one week before the test. At that time, students will also be provided with a practice test that contains representative problems that highlight the major concepts covered in that unit. Students who receive lower than a C- (70%) on a test or a quiz may be eligible to complete test/quiz corrections and improve their test/quiz score (up to a maximum of 70%). Eligibility is contingent on making and following through with a plan to attend tutoring regularly, as well as working out a better or more disciplined study method for future exams.

Retakes for Tests and quizzes should be done within one week. **If you miss a test and do not make it up within one week you will receive a score of 0.**

### Participation

Participation is important for being successful in class. Daily participation will be graded with the following scale:

7/10 is the standard grade for a student who is in class, but passive.

Students can earn a +2 for volunteering to present to the class.

Students can earn a +1 for asking/answering questions in class.

NOTE: participating for the sake of participating, over and over, will actually earn negative points. For example, asking reminder of clarification questions 20 times in class is actually a distraction and will not raise your participation grade.

Students earn a -1 for being unprepared for class (leaving book, notes, etc. in locker)

Students earn a -1 for being late to class

Students earn a -1 for each minor redirection (being asked to be quiet, stop talking, etc.)

Students earn a -3 for each major redirection (throwing things, sleeping, repeated corrections)

**Students earn a 0 for an unexcused absence or if they get a detention in class.**

## Physics II

### Late Homework

Turning in an assignment late is something students should avoid. If there is a valid reason for not completing the homework the student should email or speak to the teacher to let them know. Otherwise, homework that is late by one day will receive a 50% deduction in score and homework two or more days late will receive a score of 0.

### Homework and Assignment Standards

Failure to follow any of these standards *will* result in lost points.

- Please do all homework with pencil. Homework written in pen will get a 10 pt deduction. (out of 50)
- In the top right corner of each paper write your name, date and page number of the assignment.
- Copy all problems and diagrams exactly as they appear in the text. This includes word problems!
- Show every step
- Between problems make sure there is space; skip a line
- Attempt every problem!
- If applicable, check your answer
- Your work must be your own! You may collaborate, but do not copy
- Students will spend an average of 25 minutes per night on homework.

Homework is graded with the following point distribution:

- a) 5 pts for the header on each page
- b) 5 pts for Bell Work
- c) 5 pts for organization and legibility. This includes drawing relevant diagrams
- d) 10 pts for showing work, even if wrong
- e) 10 pts for attempting every problem
- f) 15 pts for the correct answer on randomly chosen problem(s)

Homework that is incomplete will be automatically receive a 0 for points d, e and any problem in f that is chosen to grade but was not completed

### Tutoring

Tutoring will be available in Room 215 on Monday from 7:35am-8:00am.

Please inform me prior to attending. I will not be available if no one requests tutoring!

## Physics II

### *Lab Safety*

#### **Science Safety Rules & Parent/Student Safety Contract**

Science class is an enjoyable and exciting place to learn. You are responsible for your safety and the safety of your classmates. The following are safety rules to help guide you in protecting yourself and others from injury.

1. Read all instructions before you begin.
2. Take note of every verbal or written caution given for an experiment and be fully prepared to comply with each one.
3. Do not attempt any unauthorized experiment.
4. Never engage in horseplay or practical jokes of any kind during an experiment.
5. Know the location & use of the extinguisher, eyewash, and other safety equipment.
6. Report any accident, injury, spill or incorrect procedure to your instructor at once.
7. Use safety equipment provided for you. (goggles, aprons, gloves)
8. Long hair should be tied back. Avoid hanging necklaces or bulky jewelry.
9. Only teacher approved materials are permitted in the working area.
10. Never eat or drink during the experiment. Never inhale chemicals. Do not taste any substance or draw any material into a tube with your mouth.
11. Handle lab equipment properly. Get help if you do not know how to use something.
12. Do not use chipped, cracked or dirty glassware.
13. After the experiment, clean equipment and return all materials and supplies to their proper places. Clean your area with water. Wash your hands.

---

#### ***STUDENT CONTRACT:***

I, \_\_\_\_\_, have read the above safety rules and have had the rules explained to me. I understand these guidelines are for my own safety. I will follow these rules when participating in lab activities. I understand that my failure to follow these rules and procedures could result in a hazardous situation for me or for other class members. I realize that my failure to follow these rules and procedures will result in some or all of the following actions:

- |   |   |
|---|---|
| a. a verbal warning from my teacher           | e. <u>suspension</u> from future labs   |
| b. a zero on the lab activity                 | d. <u>removal</u> from the lab activity |
| c. <u>notification</u> of my parents/guardian | f. <u>further</u> disciplinary action   |

\_\_\_\_\_  
Student signature

\_\_\_\_\_  
Date

#### ***PARENT CONTRACT:***

I, \_\_\_\_\_ am the parent/guardian of \_\_\_\_\_

I have read the above safety items and understand them. I recognize the need for safe behavior by my child in the science lab, and support these policies. I have read the consequences for failure to comply with proper procedures/rules, and I agree that a safe environment is necessary to conduct science activities.

\_\_\_\_\_  
Parent signature