

## Welcome to AP Physics 2

I welcome you all to our 2015-16 AP Physics 2 class. I am looking forward to a busy and productive year of learning ahead. This is a demanding and fast paced course geared towards preparing you for the AP Physics 2 Exam administered in the second week of May 2016. An outline of the College Board's required topics of study is presented below.

### AP Physics 2 Learning Objectives:

1. The student will be able to demonstrate an understanding of fluid mechanics, with applications to lift experienced by airplanes enabling flight.
2. The student will be able to define, explain and perform various temperature and heat calculations.
3. The student will be able to exhibit an understanding of kinetic theory, ideal gas laws and thermodynamics.
4. The student will be able to define, explain, and demonstrate an understanding of the Laws of Thermodynamics.
5. The student will be able to explain and calculate the properties and effects of basic wave motion and sound waves.
6. The student will be able to demonstrate an understanding of physical optics.
7. The student will be able to demonstrate an understanding of the principles of geometric optics.
8. The student will be able to exhibit an understanding of electrostatics.
9. The student will be able to explain the properties of conductors, capacitors, and dielectrics.
10. The student will be able to illustrate an understanding of electric current, resistance, electric circuits and be able to analyze electric circuits.
11. The student will be able to display an understanding of magnetostatics.
12. The student will be able to exhibit an understanding of electrodynamics.
13. The student will be able to display an understanding of the concepts of atomic physics and quantum effects.
14. The student will be able to exhibit an understanding of the principles of nuclear physics.
15. Students will reflect on and synthesize their acquired knowledge during the course in preparation for the AP Exam
16. Students will complete an independent research project and a design and building project.

### Materials you will need EVERY CLASS to be successful:

1. A **notebook** to keep organized notes.
2. A **folder** or **binder** to keep all handouts and other papers organized.
3. A **PENCIL** to complete your work. You will erase A LOT in this class.
4. A graphing **calculator** to solve problems.

### Rules of the class:

1. Be **respectful** to your classmates, the teacher, and all lab equipment.
2. **Follow directions** the first time you are told.
3. Come to class **on time and prepared** to learn.
4. **Please do not use Cell phones or any other electronic devices in class. You will be written up and appropriate disciplinary action will follow.**

**Please follow all Monroe Township High School Rules and Regulations.**

**Just remember: You are responsible for your own success. This is true in this class and for the rest of your life.**

**Grading Procedure:**

I use a point system; every assignment will be given a certain number of points. The weighting of different types of assignments in each marking period is as follows:

Tests:	50%
Labs:	20%
Quizzes:	20%
Homework:	10%

Each of the four marking periods is 21% of the total grade. The Final Exam is worth 16% of the total grade.

- Each lab will entail a complete **typed** formal lab report written following the guidelines provided in the 'Formal Lab Report Format'.
- Quizzes are assessments that will have differing point values depending on length and difficulty and can range from concept questions learned during discussions, to what was done during lab, to problems.
- Tests will be administered at the end of every unit or major topic and their point value will reflect how much time was spent on the unit.
- Tests and quizzes may be reviewed in class and after school, but students will not be permitted to take these home for review. If parents wish to review tests, please contact me by e-mail, and I will do my best to arrange for them to view the tests in school. This is departmental policy.
- Homework assignments will be completed on-line using WEBASSIGN and their point value will reflect the length and complexity of the assignment. Homework is critical to your success in this course.

**Extra help** is available after school from 2:10 to 3:10 pm on Tuesdays and Thursdays. You can find me in room F320; all you have to do is ask.

**E-mail:** rbasu@monroe.k12.nj.us

**Makeup Work:**

**It is your responsibility** to seek me out the day you come back to get make up work. If you do not make up the work within the guidelines outlined in your student handbook, the zero will remain.

- Labs –After School Physics Days, due 2 weeks from day of absence
- Tests and Quizzes – After School Physics Days or by appointment  
– due 2 weeks from day of absence
- Homework – due 1 week from day of absence

**Academic Integrity:**

Students caught cheating will receive a zero for the assignment and other penalties as appropriate, which may include a disciplinary referral to the office and a phone call home. Cheating includes, but is not limited to:

- Copying homework or lab answers from another student.
- Turning in the same lab report as a lab partner even if you worked together.
- Using unauthorized notes during tests.
- Copying text from the Internet and submitting it as your own writing.
- Using someone else's ideas without acknowledging them in your work.
- Sharing answers during or after a testing situation.

If there are circumstances that prevent you from doing well, please see me to talk it over rather than resort to quick shortcuts such as cheating on your work.

### Final Exam:

Students will take a Final Exam at the end of the school year. The final exam is worth 16% of the student's total grade for the course.

### Field Trip: (May or June)

Lab Physics, Honors Physics, and AP Physics students will apply skills learned throughout the year at Six Flags Great Adventure (pending Board approval). Students will analyze various amusement park rides by taking measurements and performing calculations which describe the motion of the rides. Students must complete all calculations at the park if they attend the trip. Students who do not attend must complete an equivalent assignment during class that day. Assignments will not be accepted late.

### School Closings:

In the event that a test, quiz, or assignment is due on a day there is an emergency school closing, the test or quiz will be given the following school day or the assignment will be due the following school day

### Laboratory

Physics is an experimental science; therefore, we will do lots of hands-on work in this class. Your active participation is essential. Merely watching others do science does not confer learning or skill.

Proper use of equipment is also essential. Treat all lab equipment as if it is your own personal stuff. You should always handle materials with the utmost care.

In the lab, safety is our top priority. Here are our lab safety rules:

- Students will follow the teacher's directions at all times regarding any laboratory safety issue.
- Students will read the procedures of each experiment, which will include any special safety precautions. The teacher will reemphasize safety precautions before the lab work begins.
- Students will wear closed toe shoes when directed to do so.
- Students will clean their work areas after experiments.
- Students are not to eat, drink, or chew gum in the classroom or lab.
- Students must know where the fire extinguisher is and how to use it.
- Students must know where the fire blanket is and how to use it.
- We share our lab with other classes. Students are not to handle chemicals, hotplates, or other potentially dangerous materials that may have been left behind by others.
- Equipment is never to be taken from the lab.
- Any accident of any kind is to be reported to the teacher **immediately**. This includes spills, falls, cuts, broken glass, or any other accident.
- Students are **never** to work in the lab without direct teacher supervision.
- **Horseplay is strictly prohibited.** This includes, throwing objects, running around, play wrestling, or any other kind of horseplay.
- Some of the equipment we may use, whether in laboratory exercises or classroom demonstrations, is potentially dangerous.
  - Lasers are not to be shined in a person's eye.
  - Matches and candles are to be handled with due caution. Students with long hair are to tie their hair back.
  - Projectiles (e.g., springs, balls) are not to be launched or thrown at anyone. Eyewear is to be worn when directed.
  - Objects with wheels are not to be left around on the floor.

Dr. Basu, 2015-2016

AP Physics 2

**Failure to comply with these rules may result in disciplinary action after the first offense and may result in a student's loss of lab privileges along with a zero for the lab.**

**Contact Lenses Safety:**

The following is a message to all students, parents/guardians regarding soft contact lenses.

It has come to our attention that many of our students may be wearing soft contact lenses in the laboratory; therefore, we would like you to be aware of the possible danger of their use. There have been instances in other schools and in industry, in which people have had contact lenses damaged from chemical vapors. We strongly suggest that your child not wear soft contact lenses in the science lab.

Thank you for your cooperation in this matter.

- **Homework:** Go over “Welcome to AP Physics 2” with your parent or guardian. Both you and your guardian must sign this sheet and return this page to me.

**AP Physics 2    2015-2016    Dr. Basu**

**I \_\_\_\_\_ have read the above classroom rules, laboratory safety rules, contact lenses safety precaution, and procedures, and I agree to abide by them:**

\_\_\_\_\_  
Student Signature/ Date

\_\_\_\_\_  
Parent/ Guardian Signature/ Date

Parent/Guardian Name: \_\_\_\_\_

Parent/Guardian E-mail Address: \_\_\_\_\_

Parent/Guardian Home Phone: \_\_\_\_\_

Parent/Guardian Day/Work Phone: \_\_\_\_\_

Student E-mail Address: \_\_\_\_\_

A Few Questions:

1. What extra-curricular activities are you involved in? \_\_\_\_\_

\_\_\_\_\_

2. What math class(es) will you be taking this year? \_\_\_\_\_

3. Do you need to sit in the front of the classroom for any reason? \_\_\_\_\_

4. Is there anything else you think I should know about you? \_\_\_\_\_

\_\_\_\_\_

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