

PHYSICS I COURSE CONTRACT



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Overview: Physics is nothing more than the study of nature; it is rational man's attempt to understand the universe in which he is situated. While the human race has been trying to do this for thousands of years, it has only been in the last 400 years or so that math and philosophy have progressed to the point to make significant advances in physics possible. We are still in that era of discovery and progress. Every day, physicists learn new and amazing things about our universe, from the behavior of subatomic particles to the composition of distant stars. In fact, recent discoveries have even begun to challenge some of our most fundamental beliefs about reality. I hope our class will join the legacy left by Newton and Galileo. They looked in awe at Creation and became the great question-askers of their time. It is through similar inquiry that we will discover some of the eloquent and universal laws that govern our world.

Physics I serves as the first year of a two-year physics sequence that will prepare you to take either the HL or SL Physics exam at the end of next year. In addition, at the end of this year you will be prepared to take the SAT-II/Physics exam. Along the way, I hope you will experience some of the majesty and awe that comes with scientific investigation.

FUNDAMENTAL RULE:

Everyone should show one another courtesy and respect at all times.

Topics

- Physics and Physical Measurement
- Uniform Circ. Motion & Gravity
- Waves
- One and 2-D Kinematics
- Work, Energy and Momentum
- Static and Current Electricity
- Forces & Laws of Motion
- Geometric Optics
- Electromagnetism

Course Goals and Objectives: By the end of the course, students should be able to:

- Solve problems for each topic listed above.
- Explain concepts and answer conceptual questions related to each curriculum topic listed above.
- Translate quantitative or technical information into visual form (a table or a chart)
- Correctly use lab equipment to collect and record qualitative and quantitative data.
- Use data from labs (collected by the student personally, or given to the student) to solve mathematical problems and answer conceptual questions.
- Identify patterns and correlations observed in data that is collected in lab or otherwise given, and express this information mathematically and in words.
- Answer concluding questions and write conclusions to summarize lab data, and to examine strengths and weaknesses in data collection methods and in results.

Grades:

My goal is that the grades you receive in Physics are more instructive than punitive. Receiving a poor grade on an assignment should come with hope for redemption, not despair. You can always discuss your homework or labs with me before submission to make sure you are on the right track. And homework should give you a clear indication of how ready you are for each test.

- Instruction methods will include lecture, discussion, individual classroom work, group classroom work, homework and reading assignments, labs, demonstrations, and videos.
- Assessments will include tests, quizzes, in-class work, homework assignments, and lab reports.
- Assessments will all be assigned a point value. Grade cut off will be based on a certain number of points. Grades will not be done on a 90-80-70-60% basis.

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- I do not ‘round up’ grades at the end of the term, even when close to the next higher grade. But if you are within 1% of a higher grade, and earn the higher grade during the following term, I will retroactively round up the 1st term’s grade.
- If you are absent for a test, you should arrange with me to take it on your own time (free period, lunch, before school, after school).
- **Lab work** normally can’t be made up for full credit unless you can arrange a make-up lab. Half credit may sometimes be earned by obtaining data from your lab partner, clearly identifying its source and processing it correctly and completely.
- Late papers will not normally be accepted for full credit. If one is absent for an excused reason they will be given a set amount of time to catch up with their work. Papers are due at the beginning of class. Papers handed in for grading after I’ve called for them to be handed in will be counted as late.
- All assigned work is to be neatly done and properly headed for full credit. Your name, period and appropriate title must be present.
- Explanations should be in full, complete English sentences.
- Work must be shown in “smooth form” for all calculations unless you are told otherwise.
- If you think you might be interested in taking the class Pass/No Pass, please be aware of the following:
 - Any agreement to take the class P/NP must be made with me by the 15th day of the trimester.
 - A ‘Pass’ would only be awarded if your grade in the class was at least a C-
 - Colleges may not count a ‘Pass’ as one of your required three years of science

Supplies

- You will need paper, pencil and/or pen (ink is preferable for lab work)
- You will need a 3-ring loose-leaf binder for class notes and handouts. Most of your notes will be taken on loose-leaf and handouts.
- You will need a separate notebook (spiral, preferably) for homework problems.
- The text is Physics – Serway & Faughn. You will use the text for reading assignments and homework. You will not (USUALLY) need to bring the text to class.
- Scientific calculators will be needed in class almost every day. These are cheap and easy to find. If purchasing one is a problem, then speak to me as soon as possible. Learning to operate a scientific calculator is part of the course.

Note-Taking and Study Habits

- Taking good notes is important, both to assist learning and to provide a valuable resource for test study. At a **minimum**, write down all the material written on the board and **all examples** worked in class. Study (re-work) the examples later.
- Make notes of all difficulties encountered in reading or problem solving. Get your questions answered promptly.
- Plan on daily physics time.
- Open notes (closed text) pop quizzes may occur.
- If you ask for help and have not taken notes I may ask you to take notes before I will assist you.

Attendance:

- **Lateness:** You are expected to be in class on time every day. Lateness disrupts the class and distracts from everybody’s learning. Students who are late must sign in on the sign-in sheet.
- Similarly, water breaks, trips to the restroom, etc are to be kept to a minimum.



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- **Absences:** Do your best to keep absences to a minimum so that you don't miss instruction and have to make up work. If you plan to be absent, let me know in advance so that make-up work can be arranged if possible. If you are absent, it is **your** responsibility to make up any work you missed.
- School attendance policy will be followed. My experience has been that even the most able students lose continuity when **any** physics classes are missed. The pace and nature of the work require that you be in class essentially all the time if you are to be successful.

Classroom Environment:

Gizmos and Gadgets

As wonderful as the human body is, we have a very limited ability to perceive the world through our senses. So, a large part of scientific progress over the last several hundred years has been developing tools and instruments to help us investigate the world and demonstrate its properties. Many of these devices fill my room. And they are yours to play with. I want you to have the confidence to use them, tinker with them and even take them apart. But, please be aware of three things:

- The objects in the room belong to SEHS or to me. They are all valuable and should be treated with care. Please mess with stuff, but try to make sure that the stuff is here for next year's physics students.
- Please clean up after yourselves. Put everything back where you found it when you are done.
- A couple of things in the class will kill you. If you don't think you know what you are doing, please ask.

Cell Phones

I have very mixed feelings about cell phones. One nice thing about Physics is that you will not be asked to memorize much. A downside of this is that you might occasionally have to Google the mass of a proton or the speed of sound at sea level. Cell phones are good for that. But cell phones are also *remarkable* drains on our attention and ability to learn. Even leaving your phone in a backpack isn't enough. The latest research indicates that having to exert self-control to not check your phone is still a major barrier to learning, even when you don't give in!

To try and address this, I am joining other teachers at SEHS setting up a 'cell hotel' this year. There will be a safe place to leave your phone (and charge it, if needed). Please plan on having your phone in the 'cell hotel' during class. Put your phone on silent.

Per student handbook:

Cell Phones

Electronic devices should not be out or on during class unless the teacher has given explicit permission. If the electronic device is out or being used, the teacher may take it until the end of the period. Repeated inappropriate cell phone use may result in additional disciplinary action at the discretion of the teacher or administrator. Students are expected to be respectful of instructional time and wait to check messages and conduct personal business between classes or during lunch.

Cell phones are not required or necessary for a successful academic experience. They are not necessary for emergencies. The school office is capable of transmitting need-to-know information to and from students and their families. 541.790.8000.

Failure to practice proper cell phone etiquette will result in confiscation of the phone.

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INTEGRITY

If you're taking Physics, you're probably smart enough to cheat on most high school assignments and not get caught. You could probably hack my homework system, plagiarize a lab report, or find ways get answers during a test. With a smart phone, you don't need to write answers on your hand; you can Google them.

If you haven't figured it out by now, high school is a good time to realize that no grade is worth more than your integrity. The word integrity has the same Latin root as integer, meaning whole. A person without integrity is not whole; half of them is a polite student but the other half is someone who will cheat to gain an advantage. They are the same person who uses cheat programs to play Words with Friends or doesn't pick up litter when no one sees them drop it. Live with integrity. Don't get into the habit of cheating in high school. It will not serve you well in life.

EXTRA CREDIT

Rather than providing opportunities for extra credit, I will simply provide opportunities for doing things right. If you try your hardest and still blow an assignment, then we will work out another way for you to show me that you have learned what was being assessed before the end of the grading period.

EXTRA HELP

Please see me for extra help as soon as you run into trouble. If you can correct the problem right away, you won't fall behind and life will be much easier for you. I'm usually in my office (416A) or the classroom before school, after school and on my free periods (check my schedule). If possible, make an appointment with me or else just stop by. I'm here to help!

GENERAL OPERATIONS/COMMUNICATIONS

- It is your responsibility to contact me regarding tests, assignments, labs and material missed when you are absent. Don't be passive; it's your education.
- You'll receive another handout relating to class procedures; that's also part of the course contract.
- Of course, appropriate modifications and accommodations will be made for identified special needs, such as situations involving IEP's and 504s. If other special situations exist please let me see how I can help.

Once you and your parent/guardian have read this document and the procedures supplement and understand the obligations described go to the course web page (http://blogs.4j.lane.edu/tubman_a) and print out the signature form.

My hope is that we'll do some good brain-stretching work this year while having some serious physics fun along the way and that you and I will both come out a lot smarter in June than we are right now. Every year is a new opportunity to learn, change, and grow so let's make the most of it!