

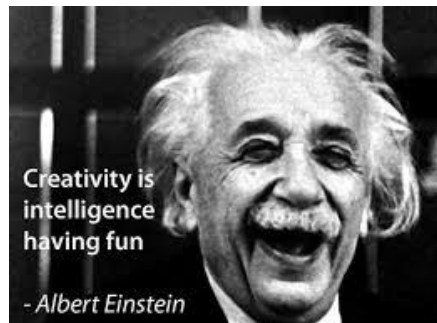
# PHYSICS SYLLABUS

This is an introductory physics course for those students planning to pursue a technical major in college such as chemistry, physics, engineering, or medicine. It will cover various topics in physics such as motion, forces, energy, waves and often optics, with strong emphasis on both theoretical concepts and problem-solving. Extensive use of mathematics is made, including the quadratic formula, interpreting graphs, simultaneous equations, the Pythagorean Theorem, trigonometry, scientific notation, and other math skills. Each subject area will include theory, demonstrations, and laboratory experiments.

## Classroom Goals

At the completion of this course, the successful student will be able to:

- Formulate and test hypotheses.
- Perform laboratory experiments demonstrating safe and proper use of equipment.
- Record, graph, chart and interpret data obtained from experimentation.
- Understand that Physics is constructed from a few ideas that can be expressed mathematically.
- Explain and apply Newton's Laws of Motion.



## Guidelines for success

- Be respectful
- Be responsible
- Be safe!*

## Classroom Rules

- Follow directions, written and oral
- Keep personal devices turned off and away
- Keep hands, feet, and objects to yourself
- Use appropriate language, both verbal and nonverbal
- Be on time, ready to learn, with all supplies

## Student Technology:

I feel very strongly that your time in class is one of your most precious resources and needs to be used wisely. With experience, I have found that personal electronic devices not being used directly for lessons or projects have no direct value to them whatsoever in the classroom. As such there will be no personal **Electronic Devices** allowed in the classroom other than school issued laptops. There will be no warnings and strict consequences will follow if personal devices are seen or heard during class. If a cell phone, iPod, , or hat is out at any point in my classroom I will take it. The first time, you may retrieve it from me after school; any subsequent offenses will result in the device being given to the HS office where parents may pick it up.

## Classroom Community Builders (21<sup>st</sup> Century Skills)

- Punctuality - Be prompt. Meet deadlines. Be efficient. Stay in class.
- Preparedness - Be ahead of the game.
- Participation - Help others to succeed. You can't help others, if you're not participating and learning yourself!
- Perseverance – *Never give up!*

**Texts:** Holt Physics by Serway and Faughn (used in class)

Supplemental text: Conceptual Physics by Paul Hewitt (not issued, but used in class)

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## Classroom Materials:

Required:

1. #2 Pencils
2. Lined Notebook Paper
3. Composition Notebook (with a binding, not spiral) to keep lab reports in:
4. 3-ring binder
5. Calculator capable of trig functions (sine, cosine, tangent) TI-83 works great
6. Metric ruler (for home use)
7. Protractor (for home use)

## **Activities**

In a typical week, students will perform experiments, take notes, participate in discussions, and take quizzes or tests.

## **Grades**

*Grading scale:*

- A = 90% - 100%
- B = 80% - 89%
- C = 70% - 79%
- D = 60% - 69%
- F = 00% - 59%

<i>Major Grades</i> <i>4 or more per quarterly grading period</i>	<i>Minor Grades</i> <i>10 or more per quarterly grading period</i>
<i>Category Weight 80%</i>	<i>Category Weight 20%</i>
<ul style="list-style-type: none"><li>• Tests/Exams</li><li>• Performance Assessments</li><li>• Major Lab Experiences</li><li>• Presentations</li></ul>	<ul style="list-style-type: none"><li>• Minor Lab Experience</li><li>• Independent practice</li><li>• Minor Quizzes</li><li>• Class work</li><li>• Community Builders</li></ul>

*Extra Credit:  
There is no extra*

Students are allowed to redo 1 Test/semester.

## **Classroom Procedures**

### ***Entering the Classroom***

When students enter my class, they should collect papers that may be set out for them by the door, get supplies, sharpen pencils, sit down, and start on the warm-up.

### ***How to Find out What the Daily Assignments Are (Very Important!)***

Daily assignments will be posted in class and can be found on my website at:

<http://mrsstruve.weebly.com> and/or Google Classroom ( sign in with school email) **Check this Every Day!**

Additionally, daily class plans, worksheets, videos, and supplements, can be found there.

### ***Turning in Assignments***

Students should turn work into the appropriate mail slot for their period, on the table, near my desk. Under certain circumstances, papers will be collected as a group. In that case, follow the instructions, as the procedure will depend upon how the desks are arranged.

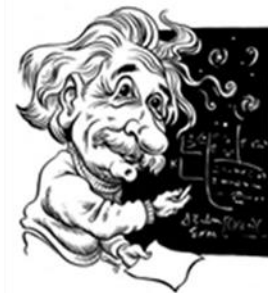
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## **Returning Assignments to Students**

Student work will be handed back by either me or student volunteers. Students who are absent will look in file folder, near my desk, under their period.

## **Ending Class**

Students will prepare for departure from the class by having all materials cleaned up and put away. They will be seated prior to the bell ringing to end the period. I will dismiss the class, not the bell.



## **Finding out Grade Status**

Grades will be posted weekly and may be accessed online from the Wausaukee School District website at <http://www.wausaukee.k12>. Sign into Infinite Campus by clicking on the Student/Parent Portal links. Students and parents may make an appointment to see me about their grades. Please see "Communication Procedures with Parents and Families" section below.

## **Student Responsibilities after an Absence**

If you are absent for **ANY** reason, **YOU ARE RESPONSIBLE** for acquiring any missed assignments and notes. Check with a friend to see what you missed. See me **BEFORE** or **AFTER** class if you have any questions and/or to schedule any make-ups. If an assignment was due the day you missed, you should have it ready to turn in the day you return to class. If you are absent on a test day, you should be prepared to take the test on the day you return! If you know that you will miss class due to school sports, school activities, or doctor appointments, you should come to me ahead of time to find out what you will miss. You are expected to be prepared for class when you return. Most lessons can be found on my website or Google Classroom. Labs will need to be made up after school, by appointment, or I will find an equivalent lab for students to do on their own. For every day you are absent, you have the same amount of time to turn in the assignment for full credit.

## **Late, Missing, or Incomplete Assignments**

Keeping deadlines is an important 21st skill to learn, therefore the following policy will be implemented in this course:

- Any assignment that is turned in late will receive an immediate 10 percent penalty (for example, a 100-point lab will have 10 points deducted from whatever score earned).
- Students with more than 2 missing assignments will have their families informed.

## **OLD ASSIGNMENT DAY:**

**Old Assignment Day** is the only day in a given marking period that a student may hand in up to three late homework assignments. The date for "Old Assignment Day" is selected about half way through a marking period. Students are informed ten days to a week in advance of the selected day and the assignments must be handed in on that day for credit to be received. Arrangements should be made ahead of time if a student is not going to be present on the date selected. No more than three assignments are accepted and no assignments are accepted after Old Assignment Day for the rest of the marking period.

## **Laboratory Protocol:**

1. Maintain proper, safe conduct.
2. Refrain from eating or drinking
3. Notify me immediately of any mishaps or injuries.
4. Wear lab attire: goggles, close-toed shoes, aprons if required, long hair should be tied back
5. Keep your work area clean and clean up when finished.
6. Follow all written lab instructions.
7. Ask me before attempting any extra experiments.

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## **Tutoring**

I will be available for tutoring/lecturing in the mornings (beginning at 7:30am) every day. After school tutoring is also available on request.

## **Communication Procedures with Parents and Families**

It is my goal for my students to learn physics and do well in my class. To make this goal happen I also will need your support. Throughout the school year, I will send group emails through the IC-Parent Portal system to keep you informed of major projects, tests, or other topics. I highly recommend setting up the Parent Portal system and maintain a current email address with the school. I also hope to get emails or calls from you with any questions/concerns you may have about your children. I check my email often so this is the preferred method of contact. If you need to speak to me in person or by phone (715)856-5151 ext 138), I am available most days, after school until 4 pm.

## **Consequences for Classroom Rule Violations**

The student will become aware, immediately, of any violations. In most circumstances, I use the following system:

- 1st violation - warning
- 2nd violation - stay 15 seconds after the bell. Time starts after the last non-dawdling student exits the room\*
- 3rd violation - phone call home
- 4th violation - referral

Each consequence is added on to the previous consequence. For example, if a student made four rule violations, s/he would get a phone call home, have to stay 15 seconds after class, and get a referral.

\* If the student leaves class before 15 seconds after the bell, s/he will be served a separate referral for that.

## **Substitute Teachers:**

I spent a few years as a substitute teacher and will be extremely disappointed to receive any kind of negative report as it reflects poorly on the school, the city of Wausaukee, as well as our classroom. I expect all subs to be treated with respect, I expect all members of the class to try to make the guest teacher's day as easy as possible, which means complete honesty and immediate compliance with the lesson plan without complaint. There will be no bathroom or beverage passes when guest teachers are in the classroom.

## **CONTENT:**

1. Mathematical Toolkit (3 Weeks)  
Graphing - Scientific Notation – Significant Digits – Algebra Review
2. Motion (5 Weeks)  
Displacement – Time – Velocity – Acceleration
3. Forces in One Dimension (3 Weeks)
4. Vector Addition and Two Dimensional Forces (3Weeks)
5. Motion in Two Dimensions (3 Weeks)  
Projectile Motion – Uniform Circular Motion – Simple Harmonic Motion
6. Universal Gravitation (3 Weeks)
7. Momentum and Collisions (3 Weeks)
8. Energy (4 Weeks)  
Work – Power – Simple Machines – Conservation of Energy
9. Waves and Sound (4 Weeks)
10. Electricity and Circuits (5 weeks)

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## A WORD OF CAUTION:

Many of you have taken several science courses and have likely slipped into a comfortable way of learning and taking tests. I must warn you that physics is different from your other science courses. Students that do well in physics generally have developed mathematical skills along with the ability to comprehend and understand complex conceptual problems (and are willing to work hard). It is not uncommon for a bright student with very good grades to encounter a physics class and find that the tried and true methods of studying don't work and struggle even to get a C. It also happens that a C student without much effort might breeze through the material and find it sometimes "too easy." Why the differences? This is a very complex question that has not been fully answered by education researchers and has been the subject of many studies. It seems to come down to learning styles. People learn using different parts of their brains. Keep in mind that these differences are not an indicator of intelligence! If you find yourself doing all the homework and studying hard with little success on exams, please stop in and see me so we can discuss an approach that will work best for you. A strong indicator that you may have trouble ahead is if you find yourself trying to memorize physics problems. To properly "do" physics, there is very little to be memorized. If you truly understand a problem, you can solve an infinite number of variations of that problem easily. If you rely on memorization, then you will quickly become "stuck" when there are slight variations. On the exams, you will seldom see problems verbatim from the homework.

**Please sign and date below, indicating that you have read and understand the course syllabus.**

*Signature of Student* \_\_\_\_\_ *Date* \_\_\_\_\_

*Signature of Guardian* \_\_\_\_\_ *Date* \_\_\_\_\_