

Physics Traditional Syllabus – Williams 2013-14

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Expectations

Above and beyond anything else, I hope all of you have a good experience in physics and get to know and appreciate your classmates. Work hard, have fun and show you have character by doing the right thing and I'm sure you'll learn physics well and grades will reflect that.

What is physics?

The laws of physics are the laws of the universe. Physics explains why the sky is blue and how far a pass will go if you throw it twice as fast (hint: it's NOT twice as far!).

Physics has a lot of cool labs & demos too. Plus, we get to do a lot of computer simulations and we have some interesting physics videos you'll like too. There are also lectures, note taking and problem solving, but you'll get somebody to work with on problems and group projects. By the time you're done, you will have a better understanding of the rules of the universe.

Course Outline

Semester 1 – Mechanics

1. Linear Motion
2. Freefall
3. Vectors & Projectile Motion
4. Forces & Newton's Laws
5. Work, Energy & Power
6. Impulse & Momentum
7. Circular motion & simple machines

Semester 2 – Electromagnetism & waves

8. Electrostatics
9. Current Electricity & Circuits
10. Magnetism & Induction
11. Waves & Sound
12. Light, Reflection & Color
13. Refraction & Lenses

Required Materials

1. Journal for note taking (no spirals, please!) & writing instrument
2. Scientific calculator capable of exponents & trig (not phone!)
3. Holt Textbook

Classroom Behavior Expectations

1. "Do the right thing": Listen during instruction, stay positive and be respectful of school property, your teacher and other students

Grading

The quarterly grading system is a total point system. Your grade is based on both performance and effort. Performance means you solve problems correctly and demonstrate understanding. Effort means you are providing me with evidence that you are trying hard to do your best. For test curves, I reflect on class effort as well as difficulty to determine whether and how much of a curve is appropriate.

Letter grades

A = 90 – 100% B = 80 – 89% C = 70 – 79% D = 60 – 69% F = 0 – 59%

Approximate Quarterly Points

- 3 or 4 tests per unit, about 100 pts each
- 3 or 4 journal checks, about 9 pts each
- 6 lab quizzes/write-ups, about 5 pts each
- 20 HW checks, 3 pts each
- Quarterly project: 40 or 50 pts
- Group points: depends on how much group work we do
- Participation points: done on a group/class basis where participation is good

Semester grading is based on the following formula

1. Quarter 1 percent 40%
2. Quarter 2 percent 40%
3. Final exam percent 20%

Other procedures & advice

Homework: Most HW assignments are worth 3 points. The HW expectation is

- for word problems: list variables, show equation by itself, box or underline final answer with units
 - example:
 - List: $v = +3 \text{ m/s}$, $t = 5 \text{ sec}$, $x = ?$
 - Eqn: $x = v \cdot t$
 - $x = 3 \cdot 5 = \underline{15 \text{ m}}$
- for conceptual problems: include an explanation where appropriate
 - example: Q: Which two are more similar: xrays, visible light or sound?
 - Not acceptable: xrays and visible light
 - Acceptable: xrays and visible light are more similar because they are both part of the electromagnetic spectrum and only differ in their frequencies (but sound is not part of the EM spectrum, is a longitudinal wave and requires a medium)

I look for evidence of appropriate effort. If you're stuck on something, put something on paper to show me you tried and you'll get credit. If you put some time and thought into a problem that's hard, you'll learn when you find out the answer! Sometimes I will spot check a particular problem for some of the points, and/or I will spot check a particular question for compliance with expectations.

Missed HW Assignment: It's important to keep up with work; otherwise, you won't get as much out of class. In order to encourage you to keep up with HW, I do not accept HW for 1/2 credit. If you miss class for any reason, it's **your responsibility on the day** you return to school to either show me your late work, or for an extended absence, propose a make-up plan to me with a specific timetable. Up to 2 assignments per quarter can be excused for any reason by doing an alternate assignment:

1. Turning in an article pertaining to a topic we study in this class along with a 1 page handwritten summary/critique on the article. Turn in BOTH the summary and the article.

Journal: The journal is a composition book available at the bookstore and many office supply stores. The journal is for in-class notes, reading notes, and problem solving. Journals are generally checked during tests. Your calendar shows all journal assignments by bolding and underling them. You are responsible for making up missed notes from online when you are absent; see me after school if there's something within the notes you don't get. Please do not assume missed class time grants an extension on the journal due date. Your journal should have an assignment heading with this format: *assignment #, date, description*. Example: 01-01, 8/25/11, Notes: Wave anatomy. The **assignment number is especially important**.

Labs/Challenges: Labs should be interesting and fun, but the most important thing during labs is to be safe. "Horseplay" never belongs in any lab. Lab points vary according to the lab but typically come from a combination of a lab sheet (data, questions, etc.), appropriate effort during the lab and a post lab quiz. Your lab grade may be based on any or all of these items and the weighting of each these components may be based on the effort observed during the lab, including safety, respect for school property and taking responsibility for clean-up. Computer lab simulations are also lab points. Any component of the lab grade that is late by one day will be accepted for 1/2 credit.

Clickers: Individual clicker points are accumulated by total points, not by percentages. There are no make-ups for clickers and clicker points are rewarded by extra credit points, usually by unit, quarter and/or semester.

Exams:

Excused absences

I want the examination process to be fair for all students. **If a student misses time in which new material is covered (NOT merely a review day), then an extension is probably appropriate.** Please don't come to class on a test day assuming you be excused from the test. That disrupts everyone else's test! Email me or meet with me before school.

Participation: From time to time, participation points may be given. Extended absences may be a reason to be excused from a participation grade. Optimum participation comes from being actively and respectfully engaged as a class for the entire period (staying seated). Overall poor class participation may result in added HW - compensating for lost time.

Cell phones: No cell phones on your desk during test days. Exception: texting by teacher desk in plain view. You may listen to music after testing, but then cell phone must be out in plain view. Otherwise, no cell phone usage except when granted permission on the board by teacher. Don't ask if we're going over something as a class.

Acting a test or being just plain awesome

I really appreciate good students beyond just a grade. Last year I made a lot more "good" calls home to parents than "bad" calls. Most calls were about getting the highest test score in class on a test.