

GHS Course Syllabus

Subject: PHYSICS Year: 2017-18

Department: SCIENCE Room #: 133 Periods Taught: 2, 5 & 7

Course Title PHYSICS

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Office Hours: Daily 7:45-8:15 am and 3:30-4:00 pm except Thursdays.

Welcome/Introduction: Welcome to physics! Everyone already has a practical knowledge of physics just because you live in a physical world. You know a little bit about how things move, gravity, waves and light. In this class we will take your knowledge deeper and hopefully clear up some common misconceptions. This course is directed at all students with an interest in the physical sciences whether they are planning on pursuing a technical career or not. College bound juniors who are planning to major in the physical sciences or engineering, should consider taking AP physics next year as it will solidify your background in physics. This course is laboratory based and math is used quite a bit, but if you are worried about that, don't. The math that is used in this course is pretty much the same basic algebra used over and over throughout the year. It is just used in different situations and I will give you lots of examples along the way. The study of physics is an awesome journey and there are a lot of fun activities, demos and labs along the way.

To succeed you need...

- **To come to class on time** and ready to work. No POD points if you are tardy.
- **A scientific calculator.** Graphing calculators are great but not required.
- **A protractor and a ruler.** Great for measuring angles and drawing straight lines!
- **Some way of organizing your work,** a 3-ring binder comes to mind! Composition books are good for notes because your notes will be in chronological order and not be on loose pieces of paper. Also, many of the handouts will be sized to fit in the composition books.

Note to Parents: Please contact me by email if you ever have any questions or concerns: gibbsj@hsd.k12.or.us.

Learning Outcomes & Course Objectives: The State of Oregon is currently in the process of moving from the Oregon Science Content Standards to the Next Generation Science Standards. Below you will find the codes for NGSS standards that will be covered during the course. NGSS standards can be found at <http://www.nextgenscience.org/search-standards-dci>

First Semester – Mechanics	NGSS Standard(s)
• Motion in a straight line including the analysis of constant velocity and accelerated linear motion conceptually, graphically and mathematically.	HS-PS2-1
• Analyze projectile motion to predict the range of an object launched at an angle.	HS-PS2-1
• Understand the application of Newton's Laws of Motion to many situations including those with friction, gravity and circular motion.	HS-PS2-1 HS-PS2-6
• Understand the application of the laws of conservation of momentum and energy.	HS-PS2-2 HS-PS2-3 HS-PS3-1 HS-PS3-2 HS-PS3-3
• Understand and apply Newton's Law of Gravitation to determine masses, radii or the acceleration due to gravity of planets, moons.	HS-PS2-4
• Apply Newton's Law of Gravitation to orbital motion.	HS-PS2-4 HS-PS3-1

Second Semester – Electricity, Magnetism, Waves & Optics	NGSS Standard(s)
• Apply Coulomb’s law conceptually and mathematically to determine the force between charged particles.	HS-PS1-1 HS-PS2-4
• Understand the relationship between electric charge, electric fields and potential difference (voltage)	HS-PS2-6 HS-PS3-5
• Understand Ohm’s law and the relationship between voltage, current and resistance in simple parallel and series circuits.	HS-PS3-1
• Understand the relationship between electricity and magnetism.	HS-PS2-5
• Understand the properties of waves: amplitude, frequency, wavelength and speed.	HS-PS4-1
• Understand the nature of many types of waves, including mechanical waves, sound waves and electromagnetic waves.	HS-PS4-3 HS-PS4-5
• Understand wave interactions such as superposition, interference (constructive and destructive), reflection, refraction and diffraction.	HS-ESS2-3
• Use the relationship speed = wavelength x frequency. Understand the affects of thin lenses and curved mirrors on the path of a ray of light.	HS-PS4-1

Readings

Optional Text: Conceptual Physics 3rd ed. by Paul Hewitt is a supplemental resource and may be checked out from the Media Center if a student would like to have a resource at home.

Optional/Suggested Text: Several free texts and resources are available on-line and several of these may be accessed from Mr. Gibbs’ website www.AstroPhysicsGHS.weebly.com. This site can also be accessed by clicking on my name on the staff page of the Glencoe High School website.

Grading Categories & Percentages:

Student grades will be based primarily on their test and quiz scores (Approximately 90% Test/Quiz/Projects, 10% Assignments/Lab Activities). Assignments and laboratory activities are designed to help students understand specific skills and/or concepts. Some students need more practice than others to become proficient at each skill and as such it is up to the student to decide how much practice they need to meet each standard. There will be frequent quizzes (typically once a week) each covering one or two specific concepts or skills including lab work. It is the quiz score that will be recorded in the grade book, individual assignments will generally not be graded, but answers to assigned problems will be posted so students can check their work. Students may retake quizzes according to the new retake policy.

A student is allowed to retake any summative assessment and receive full credit, up to ten (school) days after the original summative assessment has been graded and the score communicated to the student. After ten days, the eligibility of the retake will expire unless prior arrangements have been made with the teacher. The teacher may require evidence of learning/additional practice prior to the retake. The testing center will be available during the school day.

It is important for students and parents to understand that test and quiz retakes are there as a safety net and should not become a habit. It is the student’s responsibility to use the initial quiz and assignments as a guide to learning the material BEFORE retaking a particular concept quiz. Students are also encouraged to come in for additional help as needed. There will be a comprehensive test at the end of each unit that will generally be worth five to ten quiz scores. Student scores will be averaged at the end of the grading period and assigned a grade according to the scale below.

Grade	Earned Score	Equivalent % (Balanced)
A	90 – 100%	90 – 100%
B	80 – 89.9%	80 – 89.9%
C	70 – 79.9%	70 – 79.9%
D	60 – 69.9%	60 – 69.9%
F	0 – 59.9%	50 – 59.9%

Earned scores of less than 50% will be adjusted to 50% to balance the grading scale.

- Make-up & Late Work Policy:** Students need to do the work in a timely manner. Students who are absent will have extended time to make up work, but not unlimited time. Students who have been absent should talk to the instructor when they return to class to make arrangements for make-up work.
- Incomplete/No Grade Policy:** Since retakes on tests and quizzes are offered throughout the semester, a No Grade (N or NG) designation will only be considered for extenuating circumstances. A contract of expectations must be agreed to and signed before the end of the semester which indicates what the student needs to do, and a timeline in which to accomplish remediating an NG to a letter grade.
- Cheating/Plagiarism Policy:** Cheating/plagiarism will not be tolerated. Any student caught cheating will face disciplinary action. See student handbook.
- Classroom Conduct:** All school and district guidelines apply and all consequences are outlined in the student handbook.
- Cell phone Policy:** As a general rule, students should not use their cell phones in class. Students are expected to turn off their cell phone/electronic device and stow it in their backpack, purse or pocket at the start of class for the duration of the class. The first violation the student receives a reminder warning, the second violation the phone will be confiscated and locked up for the student to pick up at the end of class and parents will be contacted. Subsequent violations result in the phone being sent to the administration. There will be times when cell phones may be used during class for class work, however, if the cell phone is not being used appropriately during these times the above rules will apply. *Students need to learn when it is and is not appropriate to use their cell phones and as a general rule, class time is not the time for cell phone use.*
- Attendance:** Please see student handbook for the current attendance policy as they have changed this year. Two specific changes are summarized below:
- 1) The expectation of Glencoe High School is that all students are punctual to all classes. If a student arrives to a classroom after the tardy bell, within the first 10 minutes of the class period they will be considered tardy.
 - 2) The consequence for any *unexcused* tardy, is one day of After School Detention, to be served from 3:45-4:30pm. Detention will begin no later than three days after the detention is assigned.

PHYSICS

Students and Parents/Guardians – Please provide your signature below indicating you have read and understand the requirements and expectations for Physics.

Student Signature & Date

Parent/Guardian Signature & Date

Please print student name

Please print parent's/guardian's name

Please read the syllabus carefully, print a copy of the third page, sign it and return it to Mr. Gibbs