

10TH GRADE PHYSICS SYLLABUS

Fall 2015, Instructor: Eva Pillossof

Office: OHL 307, Office hours: Every day, 4 pm – 6 pm in the 9th and 10th hour classroom

Contact information: pillossof@gmail.com

Class hours:

10/1: Tuesdays and Thursdays, 8:10 am – 9:40 am

10/3: Mondays 12:10 pm – 1:40 pm and Wednesdays 10:00 am – 11:30 am

10/4: Mondays 2:00 pm – 3:30 pm and Thursdays 12:10 pm – 1:40 pm

10/5: Wednesdays 2:00 pm – 3:30 pm and Thursdays 10:00 am – 11:30 am

DESCRIPTION: Electromagnetism and wave physics is perhaps the most interesting and dynamic part of physics. Although most of you believe you are here because you are required by law in order to complete high school, my goal is to teach you some of the most exciting parts of this subject. In this class you will learn how to think critically, because physics is a lot more than memorizing a large number of facts (despite what some of your upper classmen and women might have told you). I will help you as much as I can to acquire the necessary skills in order to do great in this class. You need to do your part as well. Please understand that this is not a class for which you can study the night before. And no, this is not a challenge! You must study regularly if you want to succeed. Read the book. Reread the book. Rereread the book! Use my office hours. Form study groups. Take good notes during class. Dedicate at least four hours a week to study for this class.

ORGANIZATION: You will acquire understanding of scientific concepts, knowledge of scientific facts, and proficiency in scientific process skills. Inquiry and critical thinking will be incorporated throughout the class. This class will also cultivate your scientific literacy. You will develop problem-solving skills for solving complex physics problems as well as understand the world around you better. This class will be taught in English and thus all materials related to it (tests, exams, homework assignments, discussions, handouts, textbooks, lecture notes) will also be presented in English. Tests are scheduled every first day of class during the week and will vary in length and size, depending on the material covered. There will be four major exams throughout the semester and a final exam whose date and time will be announced with the school's final exam schedule.

NOTE: There will be make-up exams scheduled for each of the four major exams during the semester, but it is school policy not to take make-ups for the final exams, so please bear in mind that if you miss the final exam for this course you will have to retake the entire class at the Summer session.

MATERIALS AND SUPPLIES: All of you are required to have the following materials for this class:

- Several hard cover A4 spiral notebooks of at least 200-250 sheets of lined paper (you may use a binder);
- Automatic pencil with 2B lead (0.5 or 0.7, whichever is more comfortable for you);
- Eraser;
- At least 5 different colored pens, fine liners, or pencils (I would recommend fine liners);
- Persistence and motivation!
- **CALCULATORS WHEN NEEDED!**

EXPECTATIONS:

Attendance:

- Each of you is expected to come to class ready to learn every day. Consequently, coming to class on time is essential.
- Tardies will be reported according to school policy. A tardy constitutes arriving to class within 10 minutes of the scheduled start time without an excusal from a teacher/administrator. Arriving after 10 minutes of the scheduled start time is considered to be cutting class and you will receive a zero for any missed classroom activities or assignments already submitted that period.
- **Excessive tardies will result in detention(s) and/or a reduction in the course grade.**
- **However, any of you without a single tardy or absence (unless due to a school-sponsored event such as a field trip and/or rehearsal) throughout the semester will receive five additional points added on to your semester average.**
- **If you cut or miss class without an excused absence, it will be reported to the office and any activity, assignment, quiz, or test submitted or completed on that day will be recorded as a zero.**

Laboratory:

- All of you must submit a signed safety contract and pass a safety quiz prior to performing any laboratory activities.
- Failure to adhere to all lab policies and guidelines can result in a grade of zero for that particular lab.
- All laboratory experiments have safety restrictions that must be followed closely, including always wearing safety goggles and aprons. You will be given a maximum of two warnings to keep your goggles over their eyes during a lab. On the 3rd occurrence, you will be asked to leave the room, resulting in a grade of zero for the lab.

- Although you will generally work with partners, horseplay will not be tolerated and you may also be asked to leave the room if it exists, also resulting in a grade of zero.

Student Materials:

Each of you is expected to have all necessary materials ready at the beginning of class. This generally includes your textbook, a notebook, a calculator, a writing utensil, and a binder or folder (which consists of handouts, worksheets, quizzes, etc). **No electronic devices besides calculators will be allowed in the classroom without prior approval from the teacher, including cell phones, iPods, digital cameras, etc. If they are seen or heard they will be confiscated and returned at a later time or date (to be determined by the teacher).**

Exams:

- There are four major exams for this class and a final exam.
- All exams will last for the entire duration of the class (120 minutes) without the usual 10-minute break.
- Leave all textbooks, models, notes, etc. at home or you will be required to leave them in the front of the classroom during the exam.
- The tests will be written to require short answers.
- The exams will be closed book and may or may not include the allowed usage of a cheat-sheet.
- Each exam will be comprehensive, but will emphasize the most recent material.

Homework Assignments:

- You will be given a homework assignment after every lecture class.
- All homework assignments are due at the beginning of class.
- Lab reports are due a week after the lab itself; lab reports are not considered a homework assignment.
- You are expected to do your own work; violations of the honesty and integrity policies will result in individual homework assignments.

Student Behavior:

- During class, you are expected to conduct yourselves in a manner that is respectful of you, those around you, and all materials, equipment, and property of others.
- Those who cannot follow these rules may be asked to leave the room, resulting in a grade of zero for all missed work.

Food and Drink:

No food or drink is allowed in the lab room. You may have a drink in the classroom as long as you are responsible for properly disposing of it in the trash when you are done with it and/or properly cleaning it up in case it spills. No food is allowed in the classroom.

GRADING SYSTEM: Semester grades are calculated cumulatively based on points earned throughout the entire semester (80%) and the semester final exam grade (20%). Within each semester, points are continually accumulated, although your grades are final at the end of each semester. Class participation grades are a component of the overall grade.

- 92.5% -- 100% - A (6);
- 81.5% -- 92.4% - B (5);
- 71.5% -- 81.4% - C (4);
- 61.5% -- 71.4% - D (3);
- 0.00% -- 61.4 - F (2).

GRADING PLAN: Coursework will be weighed as follows:

- In-class quizzes: 10%;
- HW assignments: 13%;
- Tests: 35%;
- Lab reports: 15%
- Final exam: 20%;
- Attendance and participation: 7%.

ACADEMIC INTEGRITY AND HONESTY: All academic integrity/honesty expectations and policies will be strictly enforced. Any plagiarizing, copying, or cheating on any assignment will automatically exclude you from this course. If you are the one voluntarily allowing your materials to be copied off of, both you and the person who copied your materials will be excluded from the class.

LATE POLICY AND ABSENCES:

- Late homework assignments will not be accepted unless you have an excused absence the day it was assigned or due. Students with excused absences must still submit all assignments that were due on the day of their absence by the next class meeting, as well as any missed assignments within a reasonable period of time based on the duration of the absence. It is your responsibility to submit all prior and missed assignments and to gather and learn all material(s) missed due to absence.
- If you are absent the day of a lab, it can be made up within one week of returning to school (during 9th and 10th hour).
- Quizzes and tests missed due to an excused absence must be made up on or before the next class meeting upon returning to school. If not, a grade of zero

may be given. Any quiz or test missed due to an unexcused absence will automatically receive a grade of zero.

- Late lab reports, essays, projects, and presentations will be accepted, but will be penalized 20% for the first day late and 10% for each school day thereafter. Such assignments more than two weeks late will be given a zero for a grade.

CLASS SCHEDULE: This is tentative schedule for this semester, divided by week. Please keep in mind that it is subject to change.

1. Atomic models
2. Electrons – a detailed study
3. Coulomb's law
4. Electric field and intensity (TEST 1)
5. Electrostatic field and movement of charged particles through it
6. Capacitors (Lab 1)
7. Electric current, resistors, equivalent resistance
8. Work and power of electric currents, Joule heating (TEST 2)
9. Ohm's law (Lab 2)
10. Electric current in metals, electrolytes, and gases
11. Electric current in semiconductors (TEST 3)
12. Ampere's circuital law, magnetic field, magnetic induction (Lab 3)
13. Magnetic force and magnetic properties
14. Electromagnetic induction (TEST 4)
15. Alternating currents
16. Pendulums and resonance (Lab 4)
17. Sound and electromagnetic waves
- 18. Preparation for finals**
- 19. FINALS WEEK**