



# Second Year IB Sr. Physics

Mr. Bittinger

## Objectives:

- Students will learn about the world around them. They will develop their math and critical thinking skills. Students will conduct experiments to apply and test the laws of nature.

## Major Course Topics:

- Measurement and Uncertainties
  - Measurements in Physics
  - Uncertainties and Errors
  - Vectors and Scalars (covered last year)
- Thermal Physics
  - Temperature and Energy Changes
  - Modelling a Gas
- Magnetism
  - Magnetic Effects of Electric Currents
  - Right Hand Rules
- Electromagnetic Induction
  - EMF
  - Power Generation and Transmission
  - Capacitance
- Wave Phenomena
  - Interference Patterns
  - Resolution
  - Doppler Effect
- Atomic, Nuclear, and Particle Physics
  - Radioactivity
  - Nuclear Reactions
  - Structure of Matter
  - Interaction of Matter with Radiation
  - Nuclear Physics
- Energy Production
  - Energy Sources
  - Thermal Energy Transfer
- ~~Engineering Physics~~ \* **The IB has waived the requirement of an option for the 2020-2021 school year**
  - ~~Rotational Dynamics~~
  - ~~Thermodynamics~~
  - ~~Fluid Dynamics~~
  - ~~Damped Harmonic Motion and Resonance~~

## Materials Needed:

- One spiral notebook of about 120 pages (perforated pages are best)
- One folder
- Pencils
- Loose leaf paper
- Calculator

## Expectations

- All students are expected to be in their seats and prepared for class when the bell rings.
- **Respect everyone in the classroom. Although you might not necessarily get along with someone in the class, you are expected to be able to work with them and treat them with respect. This also includes talking when others are.**
- Horseplay and rough housing will not be tolerated, especially around equipment.
- Students will be allowed to go to the lav when necessary. No more than one student will be allowed to go to the lav at a time.
- I expect you to keep the room clean and organized. If you make a mess, clean it up before you leave. I don't come to your house and trash your room!
- Please no food or drinks in the room other than water.
- If you have a problem or something serious comes up come talk to me.

## Office Hours

- In-Person Learning: I am available to help students almost every day before school and occasionally after school if given advance notice by the student. I am also willing to give help during school hours: Monday-Friday during periods 2, 5, and 7. It's a good idea to check with me ahead of time just be certain that I will be free as these are also times I have meetings and take care of things I cannot do while teaching.
- Remote Learning: Synchronous Class will be held 4 out of every 6 days of our letter cycle. **Our letter days to complete asynchronous work are C and F.** I will still be available for office hours during this time over Microsoft teams, in the same meeting room we use for synchronous class.

## Homework and Tests

- Assignments should be turned in on the day they are due. Late homework can be turned in at 80% of their original value. Homework that is extremely late or turned in after I've passed it back to the rest of the class is worth 50%.
- If you are absent on a day that homework is due, it must be turned in the day you return to school.
- If you are absent on the day on an exam, it is **your** responsibility to schedule a makeup exam with me.
- Assignments should be neat and legible.

## Academic Honesty

- Students caught cheating on homework assignments or tests will receive a ZERO on their work for the first offense. Students will also receive a ZERO and administration involvement for any further offenses. DON'T cheat, it's not worth it!!

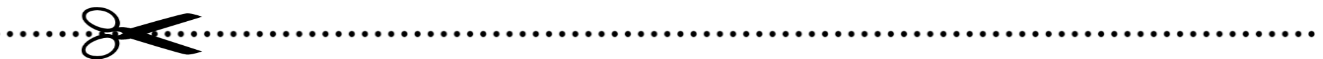
## Grading Policy

- Your final grade will be calculated using the following weighting scale:
  - Tests Graded out of 100 points, worth 50% of final grade
  - Quizzes Graded out of 100 points, counts as 30% of final grade
  - Labs/Homework Graded out of 100 points, makes up 20% of your final grade
- Homework and grades can be checked anytime online through Infinite Campus.

## Internal Assessment:

- The internal assessment in IB physics is in the form of a single, student designed and performed, laboratory experiment.
- The internal assessment for physics is 20% of a students' final IB physics grade (this grade is assigned from the IB and is different than the students' classroom grade).
- If a student does not complete their IA work, they will not be able to take their final exam.
- I take these labs very seriously and I expect my students to do the same. All lab work MUST be the original work of the student. Students are NOT allowed to work together and every write up must be unique. If a student does not follow these rules it is considered cheating by the IB program and will be removed.
- A detailed guide and other resources on physics IAs can be found on my website under "Senior IB Physics", <http://www.bittingerphysics.weebly.com>

*Please cut on the line then sign and return by September 18<sup>th</sup> 2020.*



Please sign below to indicate that you have read this document and understand what is required of you. Parents/ guardians please go over this contract with your student and sign in the appropriate location. Thank you very much!

Student Name: \_\_\_\_\_

Student Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Parent/Guardian Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Parent's/Guardian's Number: \_\_\_\_\_  
\_\_\_\_\_

Parent's/Guardian's email \_\_\_\_\_