Physics Honors

Course Syllabus 2025-2026

Instructor: Jeff Neujahr **Office Hours:** 7:30 AM – 3:45 PM Room 114

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TEXT: *Foundations of Physics, 2nd Edition, Hsu*

DESCRIPTION:

This class will cover several different aspects of Physics but will focus primarily on classical mechanics. The class will feature a mastery style classroom, where students will not progress until sufficient knowledge of a concept has been demonstrated.

RATIONALE:

There are two basic reasons for studying Physics. First, it is the study of some of our attempts to understand our world and the universe. Second, its applications have and continue to produce changes in our society. Even if you do not enter in to a Physics intensive field, you will have gained a deeper understanding of our ever-changing world.

REQUIREMENTS and EXPECTATIONS:

- Demonstrate critical thinking skills.
- Come to class ready to work with a plan for the day.
- Work together cooperatively in their group.
- Participate in labs and class discussions.
- Make good use of their study time...avoid procrastination. Formulate and ask questions.
- Participate in class every day.
- Expect some difficulty.
- Breathe
- Be a Leader in the Science Department

SUGGESTED MATERIALS:

- Scientific calculator
- School iPad
- Headphones/Earbuds
- Folder-to save any paper copies utilized in class
- Physics Notebook

GOALS:

The student will:

- Apply the steps of the scientific method.
- Communicate scientific data to others.
- Investigate and understand:
    - Classical Mechanics
- Develop proficiency and safety in the use of laboratory equipment.
- Develop Physics specific vocabulary and language skills.

RULES:

Be Respectful:

- To the Teacher
- To Other Students
- To Yourself

Be Responsible:

- Be to Class On Time
- Come to Class Ready
- Follow Lab Safety Procedures

Be Positive:

- No Complaining
- No Negative Comments

Be Accountable:

- All work is authentic
- All work is submitted before deadlines

ABSENCES:

It is your responsibility to make arrangements with the teacher.

CLASSROOM PROCEDURES:

GRADING:

**Note to students: To this point much of your high school career has focused on memorizing material and regurgitating it for a test. While this is a useful skill, it fails to help you improve on your ability to create useful tools for society. Building baseline knowledge is important and there will be some memorizing in this class, but having an adaptive, analytical, creative, problem-solving skill set is equally important. You will be challenged by new problems that require you to push yourself into areas where you are creating new ways to solve these issues.

Students will be evaluated on their performance on:

- Classwork: 10% (Challenge Problems & Book Review)
- Quarterly Project: 10%

- Lab Work: 30%
- Exams: 50%

Weekly Progression Grades: At the start of each week students will submit a weekly progression plan, explicitly listing the assignments/tasks to be completed that week.

Challenge problems: Challenge problems are graded sets of problems that students can use to prepare for tests. The problems will count as a competition grade as you will have access to the answer key in class. Working these problems will be crucial to preparing for your tests as I rarely put simple, cookie-cutter book problems from the text on your test. Often these will serve as a litmus test to see if you are ready for an exam.

Book Review: Each semester a book will be read to expand our knowledge and challenge our thinking. Periodically, students will write and submit a short summary.

Labs: The opportunity to perform many different laboratory experiments exists in this class. The length and depth of each lab varies from simple one-day preps to weeklong projects. Each chapter will have a mandatory number of laboratory events. These labs may require a formal lab report. Formal lab reports include: statement of the **problem**, required **materials** list, **procedures** used, accurate **data**, focused answers to **analysis** questions, and a well-constructed **conclusion**. A note about safety: failure to follow safety procedures will result in removal from the lab setting. After multiple disciplinary actions a student may no longer be allowed to perform labs or if severe enough the student may be asked to transfer out of the class.

Quarterly Project: Each quarter students will participate in a group project based on STEM (science, technology, engineering, and mathematics). In your group you will work together to engineer a device to solve a specific problem. At the end of the project, you will individually submit a scientific paper outlining the steps your group took throughout this project.

Exams: Exams in physics typically consist of a set of problems. The purpose of these problem sets is to gauge the understanding of the applications and concepts in physics. At times other types of exams will be used. These can include but are not limited to writing assignments, projects, and lab practical demonstrations.

Quarter 1:

- You will complete Chapters 1-4 by the end of Quarter 1 (this includes the test).
- Assignments not submitted before the test day will result in a ZERO.

Quarter 2:

- You will complete Chapters 5-8 by the end of Quarter 2 (this includes the test).
- Assignments not submitted before the test day will result in a ZERO.

Quarter 3:

- You will complete Chapter 9-12 by the end of Quarter 3 (this includes the test).
- Assignments not submitted before the test day will result in a ZERO.

Quarter 4:

- We will be flexible with Quarter 4 and make adjustments based on remaining time before graduation.

NOTE: Chapters may be altered slightly depending on the class pace. You will be given ample time to adjust to any changes in our progression throughout each quarter.

A Couple Notes:

Self-Pacing: You will be required to pace yourself in this class. This requires time-management, flexibility, and personalized learning; all skills that will be crucial in whatever future endeavor you choose for yourself after graduation.

Exams:It is your responsibility to be prepared for the tests each chapter. The test questions will be composed from concepts and formulas used in the challenge problems, videos, and labs but WILL NOT be simple, cookie-cutter questions (Concept questions will also be pulled from the book). Often times they will carry over concepts from previous chapters. The purpose of these tests is to prove that the students ***fully*** understand the material. If a student does not pass the exam at a satisfactory 77% they will need to retake. The best grade you can earn on a retake is 70%. It is in the student's best interest to prepare well for exams, as they constitute the bulk of your grade. Exam days will be announced at the release of the chapter materials.

Academic Dishonesty: In this class in order to progress to the next section or chapter a student needs to score a 77% on the exam for that chapter. If this standard is not met the student will be required to retake the chapter's test. There is one notable exception to this policy, wherein if a student is caught cheating, they will receive a zero and will be asked to transfer out of the class. The cheating policy is applied both to the cheater and the person whom they were cheating with. **This includes the sharing of test questions with other students.**

PAPERS BEING HANDED IN IF NEEDED:

- Name, date, class period, and title of assignment or page number.
- No rough edges.
- **ALL** questions answered in complete sentences.

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STUDENT AND PARENT CONSENT

- After you have carefully read all parts of this document and do not have any questions, print and sign your name below. Next you will need to take this home and review and explain it to your parent or guardian. Please have this form returned by class time on the third Friday in August.

COMPLETED BY STUDENT

Name of Student: _____ (print)

Student: _____ Date:_____
Signature

COMPLETED BY PARENT/GUARDIAN

Name of Parent/Guardian_____ (print)

Parent/Guardian_____ Date:_____
Signature