

ACCELERATED PHYSICS

Mr. Hardy

Periods 3 & 7

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COURSE INFORMATION

I. ATTENDANCE:

1) Students are required to attend class on a regular basis due to the challenging nature of the subject matter.

2) Cutting class will not be tolerated. Any work (including exams) missed due to a “cut” will be assigned a grade of zero.

3) Any student missing class due to a late sign-in or early sign-out will be responsible for that day's work.

4) Be prepared for class each day. This means showing up with a loose-leaf notebook, pen or pencil, and a calculator - **EVERY DAY!** (I recommend the TI 36X-Solar calculator. **Use of programmable calculators will not be permitted during any tests or quizzes.**)

5) You must be on time to class! Everyone should be seated and ready to begin by the sound of the bell.

II. TESTS:

Tests will be given approximately every one to two weeks - usually on Monday or Wednesday. They will be announced and the material that you will be responsible for on the exam will be explicitly stated. If a test is missed due to an *acceptable* excuse, you will be required to take a make-up exam. Please see me the morning you return, before 1st period, to schedule a time. If you know in advance that you will be missing an exam, please see me to make arrangements for an alternate time.

III. QUIZZES:

Quizzes are intended to give the student an idea of their progress up to that point. If you are doing poorly on quizzes, come to me immediately for extra help. We can set aside a convenient time for both of us to remedy the problem. Don't let a small problem snowball into a big problem. Extra help is offered by appointment – just come see me!

IV. HOMEWORK:

Homework will be assigned on a regular basis. It will count as a significant part of your quarterly grade. Homework must be handed in **at the beginning of the period** or prior to leaving for any school functions if you will be missing class.

V. PROJECTS:

There will be one or two projects assigned throughout the year. Information will be provided in the future.

VI. LABORATORY REPORTS:

Each student is required by the State Of New York to complete a *minimum* of thirty laboratory hours if they are to be eligible to take the Regents examination at the end of the year. The Regents exam will count one-fifth of the students' final grade.

- A laboratory report must be completed according to the laboratory report format for each laboratory experiment completed in class.
- Each student must complete a minimum of six lab hours per quarter.
- Laboratory reports are due on the designated date, at the beginning of the period, and students will lose **ten percent** of the laboratory report's possible points for each day it is late.
- All laboratory reports must be made-up if you are absent. You are responsible for scheduling a time with me to make-up the lab. Any overdue labs will receive a grade of zero.
- Be sure to hand lab reports to *me* - I will not be responsible for labs left in my mailbox or on my desk.

VII. QUARTERLY GRADE:

The following will be used to determine your quarterly grade:

- Tests
- Quizzes
- Homework
- Laboratory Reports
- Projects
- Class Participation (Lab and Lecture)

Your quarterly grade will be determined by dividing the total points earned by the total possible points and multiplying by 100. To be sure you receive the grade you deserve, save all your quizzes, tests, etc. I will not give out grades at the end of each quarter - you are responsible for keeping track of your grade.

Cold Spring Harbor High School

ACCELERATED PHYSICS
Course Outline
Mr. Hardy

Introduction

- I. *Mathematics Skills*
- II. *Fermi Type Questions*

OPTIONAL TOPIC: Spreadsheets

- I. *Microsoft Excel*
- II. *Laboratory Applications*
- III. *Projects*

UNIT 1 - MECHANICS

- I. *Kinematics*
- II. *Statics*
- III. *Dynamics*

UNIT 2 - MOTION IN A PLANE

- I. *Two Dimensional Motion and Trajectories*
- II. *Uniform Circular Motion*
- III. *Kepler's Laws*
- IV. *Satellite Motion*

UNIT 3 - ENERGY

- I. *Work and Energy*

OPTIONAL TOPIC: Cartoon Physics

- I. *Cartoons*
- II. *Movies*
- III. *Other Media*
- IV. *Project*

UNIT 4 - ELECTRICITY AND MAGNETISM

- I. *Static Electricity*
- II. *Electric Current*
- III. *Magnetism*
- IV. *Electromagnetic Induction*

UNIT 5 - ELECTROMAGNETIC APPLICATIONS

- I. *Torque On A Current-Carrying Loop*
- II. *Electron Beams*
- III. *Induced Voltage*
- IV. *The Laser*
- V. *Construction Of Electromagnetic Devices*

UNIT 6 - INTERNAL ENERGY

- I. *Temperature*
- II. *Internal Energy & Heat*
- III. *Kinetic Theory Of Gases*
- IV. *Laws Of Thermodynamics*

UNIT 7 - WAVE PHENOMENA

- I. *Introduction To Waves*
- II. *Characteristics Of Periodic Waves*
- III. *Periodic Wave Phenomena*
- IV. *Light*

OPTIONAL TOPIC: Amusement Park Physics

A. Mechanics Review:

- I. *Kinematics*
- II. *Statics*
- III. *Dynamics*

B. Motion In A Plane Review:

- I. *Two Dimensional Motion and Trajectories*
- II. *Uniform Circular Motion*
- III. *Kepler's Laws*
- IV. *Satellite Motion*

C. Energy Review:

- I. *Work and Energy*

D. Additional Topics:

- I. *Vertical Loops (Roller Coasters)*
- II. *Instrumentation*

UNIT 8 - GEOMETRIC OPTICS

- I. *Images*
- II. *Images Formed By Reflection*
- III. *Images Formed By Refraction*

UNIT 9 - MODERN PHYSICS

- I. *Dual Nature Of Light*
- II. *The Quantum Theory*
- III. *Models Of The Atom*

UNIT 10 - NUCLEAR ENERGY

- I. *The Nucleus*
- II. *Nuclear Reactions*
- III. *Nuclear Applications/Technology In The Future*

** Additional Information Added/Removed As Necessary According To Physics Achievement Test Requirements*