

AP Physics B, 2011-2012

First Semester Course Syllabus and Assignments

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Reading assignments are from the course textbook, *Principles of Physics* (Kinetic Books, v. 2).
Homework quizzes are on our Moodle course page at hw.mrooms.org.

Unit 1: Kinematics

Kinematics definitions and graphing

Reading Assignment 1.1 (2.1-6)

Homework Quiz 1.1

Reading Assignment 1.2 (2.9-12)

Homework Quiz 1.2

Constant acceleration equations and problem solving

Podcast 1.1: Constant Acceleration

Homework Quiz 1.3

*****QUIZ*****

Practice Problems

Chapter 2

C.6, C.11, C.18, 9.2, 18.6, 23.12

Chapter 3

12.3, A.1

Vector addition and 2D motion

Podcast 1.2: Vector Basics

Podcast 1.3: Adding Vectors

Homework Quiz 1.4

Podcast 1.4: Relative Velocity

Homework Quiz 1.5

Projectile motion

Podcast 1.5: Intro to Projectile Motion

Homework Quiz 1.6

Podcast 1.6: More Projectiles

Homework Quiz 1.7

*****TEST*****

Practice Problems

Review the problems for the quiz above

Chapter 4

C.2, C.5, 7.7, 7.9, 14.6, 22.2

LAB: Galileo's Experiment

Unit 2: Dynamics

Newton's Laws and types of forces

Reading Assignment 2.1 (5.1-3, 5, 10)

Homework Quiz 2.1

Reading Assignment 2.2 (5.18-22)

Homework Quiz 2.2

Specific forces and problems

Podcast 2.1: Inclined Planes

Homework Quiz 2.3

Podcast 2.2: Systems

Homework Quiz 2.4

Review podcast: Solving force problems

*****TEST*****

Practice Problems

Chapter 5

C.1, C.9, 5.6, 5.10, 20.1, 20.3, 25.2

Chapter 6

C.3, 6.1, 7.5, 11.1

Circular Motion

Reading Assignment 2.3 (9.0-4, 6)

Homework Quiz 2.5

Reading Assignment 2.4 (9.9-12)

Homework Quiz 2.6

Universal gravity and orbits

Reading Assignment 2.5 (13.0-2, 14, 17-18)

Homework Quiz 2.7

Podcast 2.3: Proportionality Problems

Homework Quiz 2.8

*****TEST*****

Practice Problems

Review problems for the test above

Chapter 9

C.2, C.9, 4.2, 7.3, 8.1, 8.2, 10.1,
11.3, A.4

Chapter 13

C.2, 1.3, A.2

LAB: Newton's Second Law Experiment

Unit 3: Conservation Laws

Work and kinetic energy

Reading Assignment 3.1 (7.0-1)

Homework Quiz 3.1

Reading Assignment 3.2 (7.5-7)

Homework Quiz 3.2

Potential energy

Podcast 3.1: Gravitational Potential Energy

Homework Quiz 3.3

Podcast 3.2: Potential Energy in Space

Homework Quiz 3.4

*****QUIZ*****

Practice Problems

Chapter 7

C.2, 1.4, 7.2, A.4, A.12

Chapter 13

21.5, 21.6

Momentum

Reading Assignment 3.3 (8.0-2)

Homework Quiz 3.5

Podcast 3.3: Conservation of Momentum

Homework Quiz 3.6

Podcast 3.4: Momentum problem solving

Homework Quiz 3.7

*****TEST*****

Practice Problems

Review problems for the quiz above

Chapter 8

C.5, 3.10, 3.12, 11.1, 16.2, 16.3,

18.5, 19.4, A.3, A.4

LAB: Tension in the String of a Pendulum

Unit 4: Harmonic Motion and Mechanical Waves

Springs and Simple Harmonic Motion

Reading Assignment 4.0 (5.28, 15.18)

Homework Quiz 4.1

Reading Assignment 4.1 (15.0-3, 5)

Homework Quiz 4.2

*****QUIZ*****

Practice Problems

Chapter 5

28.3

Chapter 15

C.2, 15.6, 18.1, 20.1

Wave Behavior and Sound

Podcast 4.1: Intro to Waves and Sound

Homework Quiz 4.3

Reading Assignment 4.2 (18.0-2)

Homework Quiz 4.4

Podcast 4.2: Standing Waves

Homework Quiz 4.5

Podcast 4.3: Doppler Effect

Homework Quiz 4.6

*****TEST*****

Practice Problems

Review problems for the quiz above

Chapter 16 C.1, C.2, C.4, 0.1, 6.2, 8.4

Chapter 18 7.1, 7.3, 10.7, 17.2

[LAB: Acceleration Due to Gravity](#)

[LAB: The Force Constant of a Spring](#)

[LAB: Speed of Sound](#)

Unit 5: Fluids and Thermodynamics

Fluid Statics

Reading Assignment 5.1 (14.1-3): intro to fluids and pressure

Homework Quiz 5.1

Podcast 5.1: Buoyant force

Homework Quiz 5.2

Fluid Dynamics

Podcast 5.2: Continuity Equation

Homework Quiz 5.3

Podcast 5.3: Bernoulli Equation

Homework Quiz 5.4

*****QUIZ*****

Practice Problems

Chapter 14

C.1, C.8, C.11, 9.3, 13.1, 18.2, 20.2

Theories of Heat

Reading Assignment 5.2 (19.1-6)

Homework Quiz 5.5

Podcast 5.4: Kinetic Theory and Ideal Gas Law

Homework Quiz 5.6

Heat Engines

Reading Assignment 5.3 (21.5-9)

Homework Quiz 5.7

*****QUIZ*****

Practice Problems

Chapter 19

9.4, 23.1

Chapter 20

5.3, 10.2

Chapter 21

1.1, 3.2, 7.2, 15.1, 23.2, A.4

Chapter 22

10.2, 12.1, 12.5, A.2

LAB: Fluids

Unit 6, Part 1: Electrostatics

Electric Charge

Reading Assignment 6.1 (23.0-3, 5, 7)

Homework Quiz 6.1

Electrostatics Forces and Fields

Reading Assignment 6.2 (23.9-13)

Homework Quiz 6.2

Podcast 6.1: Electric Fields

Homework Quiz 6.3

Potential Energy and Potential

Podcast 6.2: Electric Potential Energy and Electric Potential

Homework Quiz 6.4

*****QUIZ*****

Practice Problems

Chapter 25

C.2, C.4, C.7

1.3, 3.2, 4.2, 5.2, 7.4, 8.1

8.5, 11.1, 12.7, 17.6

LAB: Mapping the Electric Field