

PHYS133 16

STUDENT WARNING: This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

Course Summary

Description

Course Description: This fundamental Physics course is the first of two courses that examine basic Physics using algebraic techniques. Topics include Mechanics, Fluids, Oscillations, Waves, Temperature, Heat, and thermodynamics. The course involves study through interactive simulation laboratories designed to help reinforce and build upon the concepts presented in the lectures. Prerequisite: MATH110, MATH111, or MATH225

Course Scope:

This calculus based course is designed to provide students with an overview of Physics. Students will learn to apply Newtonian principles to the fundamental topics of motion, gravitation, momentum, work and energy, heat, wave behavior, sound and light, electricity and magnetism.

Objectives

The successful student will fulfill the following learning objectives:

- CO-1** Describe the motion of macroscopic objects in one and two dimensions using vectors and Calculus.
- CO-2** Apply the principles of conservation of momentum and energy to solve problems related to the motion of macroscopic objects.
- CO-3** Solve Fluid Dynamics problems.
- CO-4.** Describe the oscillatory motion of macroscopic objects in one dimension.
- CO-5** Explain how waves transfer energy without transferring matter.

CO-6

Describe wave motion.

CO-7 Describe how waves are reflected and refracted at boundaries between media.

CO-8 Apply the Laws of Thermodynamics to solve problems related with the flow of heat.

CO-9 Apply the principles and laws of the Kinetic Theory of Gases.

Outline

Week 1: Mathematical Concepts and Kinematics in One Dimension

Learning Objective(s)

CO-1

Reading(s)

Cutnell and Johnson, Chapters 1 and 2,

Week 1 Lesson including lectures slides and video

Assignment(s)

Introduce Yourself Forum

Assignment 1

Week 2: Kinematics in Two Dimensions

Learning Objective(s)

CO-1

Reading(s)

Cutnell and Johnson, Chapter 3,

Week 2 Lesson including lectures slides and video

Assignment(s)

Week 2 Social Homework Forum

Assignment 2

Lab 1

Week 3: Forces and Newton's Laws of Motion

Learning Objective(s)

CO-1, CO-2

Reading(s)

Cutnell and Johnson, Chapter 4,

Week 3 Lesson including lectures slides and video

Assignment(s)

Week 3 Social Homework Forum

Assignment 3

Week 4: Dynamics of Uniform Circular Motion

Learning Objective(s)

CO-1, CO-2, CO-4

Reading(s)

Cutnell and Johnson, Chapter 5,

Week 4 Lesson including lectures slides and video

Assignment(s)

Week 4 Social Homework Forum

Assignment 4

Lab 2

Quiz 1

Week 5: Work and Energy

Learning Objective(s)

CO-2

Reading(s)

Cutnell and Johnson, Chapter 6,

Week 5 Lesson including lectures slides and video

Assignment(s)

Week 5 Social Homework Forum

Assignment 5

Week 6: Impulse and Momentum

Learning Objective(s)

CO-2

Reading(s)

Cutnell and Johnson, Chapter 7, Week 6 Lesson including lectures slides and video

Assignment(s)

Week 6 Social Homework Forum

Assignment 6

Lab 3

Week 7: Rotational Kinematics

Learning Objective(s)

CO-1, CO-2, CO-4

Reading(s)

Cutnell and Johnson, Chapter 8,

Week 7 Lesson including lectures slides and video

Assignment(s)

Week 7 Social Homework Forum

Assignment 7

Week 8: Rotational Dynamics

Learning Objective(s)

CO-1, CO-2, CO-4

Reading(s)

Cutnell and Johnson, Chapter 9,

Week 8 Lesson including lectures slides and video

Assignment(s)

Week 8 Social Homework Forum

Assignment 8

Week 9: Simple Harmonic Motion and Elasticity

Learning Objective(s)

CO-4

Reading(s)

Cutnell and Johnson, Chapter 10,

Week 9 Lesson including lectures slides and video

Assignment(s)

Week 9 Social Homework Forum

Assignment 9

Midterm Exam (covers chapters 1 through 9)

Week 10: Fluids

Learning Objective(s)

CO-3

Reading(s)

Cutnell and Johnson, Chapter 11,

Week 10 Lesson including lectures slides and video

Assignment(s)

Week 10 Social Homework Forum

Assignment 10

Lab 4

Week 11: Temperature and Heat

Learning Objective(s)

CO-8

Reading(s)

Cutnell and Johnson, Chapter 12,

Week 11 Lesson including lectures slides and video

Assignment(s)

Week 11 Social Homework Forum

Assignment 11

Lab 5

Week 12: Transfer of Heat

Learning Objective(s)

CO-5, CO-8

Reading(s)

Cutnell and Johnson, Chapter 13,

Week 12 Lesson including lectures slides and video

Assignment(s)

Week 12 Social Homework Forum

Assignment 12

Quiz 2

Week 13: Ideal Gas Law and Kinetic Theory

Learning Objective(s)

CO-9

Reading(s)

Cutnell and Johnson, Chapter 14,

Week 13 Lesson including lectures slides and video

Assignment(s)

Week 13 Social Homework Forum

Assignment 13

Lab 6

Week 14: Thermodynamics

Learning Objective(s)

CO-8

Reading(s)

Cutnell and Johnson, Chapter 15,

Week 14 Lesson including lectures slides and video

Assignment(s)

Week 14 Social Homework Forum

Assignment 14

Week 15: Waves and Sound

Learning Objective(s)

CO-5, CO-6, CO-7

Reading(s)

Cutnell and Johnson, Chapter 16,

Week 15 Lesson including lectures slides and video

Assignment(s)

Week 15 Social Homework Forum

Assignment 15

Lab 7

Week 16: Review

Learning Objective(s)

CO-1, CO-2, CO-3, CO-4, CO-5, CO-6, CO-7, CO-8, CO-9

Reading(s)

Cutnell and Johnson, Chapters 9-16, all weekly lesson and lecture videos

Assignment(s)

Week 16 Final Exam Review Forum

Assignment 16

Final Exam (covers chapters 10 through 16)

Evaluation

Forums:

Participation is mandatory and will count towards the course grade. You are expected to provide a substantial comment of several well-written paragraphs in each session and a similar comment or reflection in reply to at least two other students' contribution. Statements such as "I agree" or "good post" will not count as a reply.

Quizzes and Exams:

The quizzes and exams are on-line, open-book, and timed. They may include multiple choices, fill in the blank, and short essay type questions. An announcement will be posted when they are available to be taken.

Lab Reports:

Each exercise is designed to have every student apply principles learned during that week. Most of them are "virtual labs" but hands-on experiments may be included.

Please see the [student handbook](#) to reference the University's [grading scale](#).

Grading:

Name	Grade %
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Assignments	15.00 %
Assignment 1	1.00 %
Assignment 2	1.00 %
Assignment 3	1.00 %
Assignment 4	1.00 %
Assignment 5	1.00 %
Assignment 6	1.00 %
Assignment 7	1.00 %
Assignment 8	1.00 %
Assignment 9	1.00 %
Assignment 10	1.00 %
Assignment 11	1.00 %
Assignment 12	1.00 %
Assignment 13	1.00 %
Assignment 14	1.00 %
Assignment 15	1.00 %
Forums	15.00 %
Forum 1 - Introduction Forum	0.94 %
Forum 2 - Social Homework	0.94 %
Forum 3 - Social Homework	0.94 %
Forum 4 - Social Homework	0.94 %
Forum 5 - Social Homework	0.94 %
Forum 6 - Social Homework	0.94 %
Forum 7 - Social Homework	0.94 %
Forum 8 - Social Homework	0.94 %
Forum 9 - Social Homework	0.94 %
Forum 10 - Social Homework	0.94 %
Forum 11 - Social Homework	0.94 %
Forum 12 - Social Homework	0.94 %
Forum 13 - Social Homework	0.94 %
Forum 14 - Social Homework	0.94 %
Forum 15 - Social Homework	0.94 %
Forum 16	0.94 %
Quiz	15.00 %
Quiz 1	7.50 %
Quiz 2	7.50 %
Lab	15.00 %
Lab 1	2.14 %
Lab 2	2.14 %
Lab 3	2.14 %
Lab 4	2.14 %
Lab 5	2.14 %
Lab 6	2.14 %
Lab 7	2.14 %
Midterm Exam	20.00 %
Midterm Exam	20.00 %
Final Exam	20.00 %
Final Exam	20.00 %

Materials

Book Title: PHYS133 eScience Lab Kit

Author:

Publication Info: ESCIENCE LABS

ISBN: 2092

Book Title: Physics 10th ed. - The VitalSource e-book is provided via the APUS Bookstore

Author: Cutnell / Johnson / Young / Stadler

Publication Info: Wiley

ISBN: 9781118486894

Book Title: You must validate your cart to get access to your VitalSource e-book(s) and hard copy book(s). If needed, instructions are available here - <http://apus.libguides.com/bookstore/undergraduate>

Author: N/A

Publication Info: N/A

ISBN: N/A

Required Technology

- See the Technology Requirements section of the undergraduate catalog for the minimum hardware and software requirements.
 - Microsoft Office 365 is available to APUS students for free. To sign up, visit <http://products.office.com/en-us/student>. If you have questions about accessing the software, please contact Classroom support at classroomsupport@apus.edu.
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Course Guidelines

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- Tutor.com offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under

each Assignment.

- Generally speaking, late work may result in a deduction up to 15% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.
- “Substantive” means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says “I agree” is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

University Policies

[Student Handbook](#)

- [Drop/Withdrawal policy](#)
- [Extension Requests](#)
- [Academic Probation](#)

- [Appeals](#)
- [Disability Accommodations](#)

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