

SCIN133

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 course offers an introduction to classical physics for non-scientists. 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. Basic algebra is used to demonstrate how mathematics can describe and predict the real-world behavior of objects, from electrons to planets. Students will be expected to relate physics principles to their daily lives. The Physics lab teaches students how to take measurements and make observations about physical phenomena, make calculations, and test out their own reasoning. Topics covered in this lab course range from motion to magnetism. This course also involves study through interactive simulation laboratories designed to help reinforce and build upon the concepts presented in the lecture portion of the course.

Course Scope:

This algebra 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:

- Distinguish between Science and Pseudoscience.
- Calculate the position, velocity and acceleration of macroscopic objects moving in one dimension.
- Solve dynamics problems applying Newton's laws of motion.
- Solve mechanics problems applying the principles of conservation of linear momentum and energy.
- Solve thermodynamics problems applying the principle of conservation of energy.
- Explain how waves transfer energy without transferring matter.
- Describe how waves are reflected and refracted at boundaries between media.
- Solve simple problems in Electricity and Electromagnetism.
- Explain the dual nature of light.

Outline

Week 1: The Nature of Science.

Learning Objective

Distinguish between science and pseudoscience.

Reading assignment

Chapter 1: What is Science?

Assignments

Forum 1. Assignment 1. Lab 1.

Week 2: Motion.

Learning Objective

Calculate the position, velocity and acceleration of macroscopic objects moving in one dimension. Solve dynamics problems applying Newton's laws of motion. Solve mechanics problems applying the principle of conservation of linear momentum.

Reading assignment

Chapter 2: Motion.

Assignments

Forum 2. Assignment 2. Quiz 1 (weeks 1 & 2).

Week 3: Energy.

Learning Objective

Solve mechanics problems applying the principle of conservation of energy.

Reading assignment

Chapter 3: Energy.

Assignments

Forum 3. Assignment 3. Lab 2.

Week 4: Heat and Temperature.

Learning Objective

Solve thermodynamics problems applying the principle of conservation of energy.

Reading assignment

Chapter 4: Heat and Temperature.

Assignments

Forum 4. Assignment 4. Midterm Exam (weeks 1,2, 3 & 4).

Week 5: Wave Motions and Sound.

Learning Objective

Explain how waves transfer energy without transferring matter.

Reading assignment

Chapter 5: Wave Motions and Sound.

Assignments

Forum 5. Assignment 5. Lab 3.

Week 6: Electricity.

Learning Objective

Solve simple problems in Electricity and Electromagnetism.

Reading assignment

Chapter 6: Electricity.

Assignments

Forum 6. Assignment 6. Quiz 2 (weeks 5 & 6).

Week 7: Light.

Learning Objective

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

Reading assignment

Chapter 7: Light (7.1-7.3)

Assignments

Forum 7. Assignment 7. Lab 4.

Week 8: Introduction to Modern Physics

Learning Objective

Explain the dual nature of light.

Reading assignment

Chapter 7 Light (7.4-7.6)

Assignments

Final forum. Lab 5. Final Exam.

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.

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 %
Forums	12.00 %
Introduce yourself	1.33 %
Forum 1	1.33 %
Forum 2	1.33 %
Forum 3	1.33 %
Forum 4	1.33 %
Forum 5	1.33 %
Forum 6	1.33 %
Forum 7	1.33 %
Forum 8	1.33 %
Assignments	21.00 %
Assignment 1 - Week 1	3.00 %
Assignment 2 - Week 2	3.00 %
Assignment 3 - Week 3	3.00 %
Assignment 4 - week 4	3.00 %
Assignment 5 - week 5	3.00 %
Assignment 6 - week 6	3.00 %
Assignment 7 - week 7	3.00 %
Labs	15.00 %
Lab 1 - week 1	3.00 %
Lab 2 - week 3	3.00 %
Lab 3 - week 5	3.00 %
Lab 4 - week 7	3.00 %
Lab 5 - week 8	3.00 %
Quizzes	12.00 %
Quiz 1	6.00 %
Quiz 2	6.00 %
Mid-Term Exam	15.00 %
Midterm Exam	15.00 %
Final Exam	25.00 %
Final Exam	25.00 %

Materials

Book Title: Physical Science 11th Edition - The VitalSource e-book is provided via the APUS Bookstore

Author: Tillery, Bill

Publication Info: McGraw-Hill

ISBN: 9780077862626

Book Title: You must validate your cart to get access to your VitalSource e-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](https://www.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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diverse, global society.

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