

**Course Title: PHYS 2513 – UNIVERSITY PHYSICS I**

**Course Prefix:** PHYS

**Course No.:** 2513

**Section No.:** P02

**Department of | Physics**

**College of | Arts and Sciences**

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**Office Hours:** | M, W, F 11 AM – 1 PM

**Virtual Office Hours:** | N/A

**Course Location:** | E.E. Obanion Science Building Room 103

**Class Meeting Days & Times:** | MWF 9 AM

**Catalog Description:** | Credit 3 semester hours. A calculus-based introductory physics course for science and engineering students. Course includes measurement, Newton's laws of motion statics, dynamics, mechanical energy, momentum, circular motion, and selected topics from torque, modules, Newton universal law, and fluid mechanics. Prerequisite: MATH 1124.

**Prerequisites:** | MATH 1124

**Co-requisites:** |

**Required Text:** | University Physics with Modern Physics by W. Bauer and G. D. Westfall 2011 (McGraw Hill)

**Recommended Text/Readings:** |

**Access to Learning Resources:** | PVAMU Library:  
| phone: (936) 261-1500;  
| web: <http://www.pvamu.edu/pages/3585.asp>  
| University Bookstore:  
| phone: (936) 261-1990;  
| web: <https://www.bkstr.com/Home/10001-10734-1?demoKey=d>

**Course Goals or Overview:**

Students will learn fundamental concepts in the field of mechanics applicable to engineers and scientists. This is the first course in calculus-based physics. It is designed for students who plan to major or specialize in one of the areas of science, engineering, or in one of the many areas of technology, including computer science. At least one year of physics is the minimum prerequisite for specialization in one of these fields.

**Course Outcomes/Objectives** Upon completion of this course, it is expected that the students will gain enough knowledge of the theory covered to apply it to the solution of a wide range of practical problems that involve physics. Hopefully this will help the students to better understand the theory of operations of many instruments and devices that they will encounter as they become employed in the various fields mentioned earlier. In addition, it will help them solve new problems that they will possibly meet on their various fields of employment that require basic knowledge of physics. In particular, upon completion of this course, students should be able to demonstrate:

- facility with the physics concepts in the field of mechanics as measured by problem solving on exams
- familiarity with scientific & quantitative methods of thinking
- ability to apply calculus in a real-world physical setting

## At the end of this course, the student will...

		Core Curriculum Objective
1	Students will demonstrate knowledge of calculus and solve problems involving differential equations, integral equations and abstract manipulation of variables used to describes the laws of mechanics and motion	Critical Thinking & Empirical/Quantitative skills
2	Students will develop proficiency in the calculus methods of basic differential operations, derivatives, integral equations and the application of such methods to solving physics problems	Critical Thinking & Empirical/Quantitative Skills
3	Students will understand and demonstrate knowledge of calculus-based physics by utilizing writing and speaking tools through invention, organization, drafting, correcting and presentation of acquired knowledge	Communication and Personal Responsibility
4	Students will demonstrate knowledge by understanding the importance of specifying audience and purpose through the selection of appropriate communication tools	Empirical/Quantitative skills and Communication
5	Students will demonstrate knowledge and solve problems dealing with laws of motion and calculus-based techniques using complex interpretation of data and theories	Empirical/Quantitative skills and Communication
6	Students will demonstrate their mastery of physics notions through collecting and analyzing data, computer simulations, class-room discussions and participating effectively in groups with emphasis on reflective thinking.	Teamwork and Communication

## Course Requirements & Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

**Exams** – written tests designed to measure knowledge of presented course material

**Exercises** – written assignments designed to supplement and reinforce course material

**Projects** – web assignments designed to measure ability to apply presented course material

**Class Participation** – daily attendance and participation in class discussions

## Grading Matrix

Instrument	Value (points or percentages)	Total
Assignments	4 assignments at 5 each	20
Quizzes	4 quizzes at 5 points each	20
Other Exams	2 exams at 20 points each	40
Mid Term Exam	20	20
Class Participation/ Discussion	10	10
Final Exam	20	20
<b>Total:</b>		<b>130</b>

### Grade Determination:

Based into a percentage scale of total points earned relative to the maximum of points available, the grading system is as follows:

A = 90% – 100%;

B = 80% – 89%;

C = 70% – 79%;

D = 60% – 69%;

F = 59% or below

## Course Procedures

**POLICIES:** This course uses the lecture format. Selected materials in each chapter will be covered in lecture. You should read the entire assigned chapter before class. The lecture will not replace reading the materials. The lecture will be to amplify and

explain the materials in the textbook. Homework problems will be assigned during the entire semester for each chapter covered. It is expected that the student solve these problems prior to the next class meeting. Any student unable to solve a particular assigned problem should contact the professor. Pop quizzes may be given occasionally on covered materials. It is expected that you will need to spend at least two hours studying outside the class for each hour spent in class. That means you should plan to devote a minimum of six hours per week for this class.

**PERFORMANCE EVALUATION AND GRADING:** There will be four examinations during the semester including a final exam. Examinations will consist of solving quantitative and/or qualitative physics problems. All examinations are closed book and the final exam may be comprehensive. The use of calculators is permitted and encouraged. Two exams are given during the first half of the semester and two more exams during the second half of the semester. Each exam is worth 20 points and in total the exams contribute 80 points of your final grade. Makeup examinations are given **ONLY** for a university-approved absence verified in writing. The remaining 20 points of your final grade will come from two homework assignments. Upon the discretion of the Instructor, bonus points will be available from quizzes, classroom attendance rolls (if applicable) and any special project(s) together, any or some of them chosen by the Instructor.

**Submission of Assignments:** Assignments should be turned in on their due dates. No late homework assignments will be accepted.

**Formatting Documents:**

Microsoft Word is the standard word processing tool used at PVAMU. If you're using other word processors, be sure to use the "save as" tool and save the document in either the Microsoft Word, Rich-Text, or plain text format.

**Exam Policy**

Exams should be taken as scheduled. No makeup examinations will be allowed except under documented emergencies (See Student Handbook).

**Professional Organizations and Journals : N/A**

**References: N/A**

### Semester Calendar

<b>Week One:</b> Topic	Overview
Chapter (s):	<b>Ch.1</b>
Assignment (s):	Read material in textbook
<b>Week Two:</b> Topic	Motion in a straight line
Chapter (s):	<b>Ch. 2</b>
Assignment (s):	Read material in textbook
<b>Week Three:</b> Topic	Motion in two and three dimensions
Chapter (s):	<b>Ch. 3</b>
Assignment (s):	Assignment 1
<b>Week Four:</b> Topic	Force
Chapter (s):	<b>Ch. 4</b>
Assignment (s):	Read material in textbook
<b>Week Five:</b> Topic	Kinetic energy, Work and Power
Chapter (s):	<b>Ch. 5</b>
Assignment (s):	Assignment 2
<b>Week Six:</b> Topic	Potential energy and energy conservation
Chapter (s):	<b>Ch. 6</b>

Assignment (s):	Read material in textbook
<b>Week Seven:</b> Topic	Gravitation
Chapter (s):	<b>Ch. 12</b>
Assignment (s):	Assignment 3
<b>Week Eight:</b> Topic	Momentum and Collisions
Chapter (s):	<b>Ch. 7</b>
Assignment (s):	Read material in textbook
<b>Week Nine:</b> Topic	Systems of Particles and Extended Objects
Chapter (s):	<b>Ch. 8</b>
Assignment (s):	Assignment 4
<b>Week Ten:</b> Topic	Circular Motion
Chapter (s):	<b>Ch. 9</b>
Assignment (s):	Read material in textbook
<b>Week Eleven:</b> Topic	Rotation
Chapter (s):	<b>Ch. 10</b>
Assignment (s):	Assignment 5
<b>Week Twelve:</b> Topic	Static Equilibrium
Chapter (s):	<b>Ch. 11</b>
Assignment (s):	Read material in textbook
<b>Week Thirteen:</b> Topic	Oscillations
Chapter (s):	<b>Ch. 13</b>
Assignment (s):	Assignment 6
<b>Week Fourteen:</b> Topic	Waves
Chapter (s):	<b>Ch. 15</b>
Assignment (s):	Read material in textbook
<b>Week Fifteen:</b> Topic	Review , study, and final exam days
Chapter (s):	<b>All Chapters</b>
Assignment (s):	Final Exam

## University Rules and Procedures

### Disability statement (See Student Handbook):

Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

### Academic misconduct (See Student Handbook):

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

### Forms of academic dishonesty:

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor

on assignments or examinations.

2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
3. Fabrication: use of invented information or falsified research.
4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

### **Nonacademic misconduct (See Student Handbook)**

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

### **Sexual misconduct (See Student Handbook):**

Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

### **Attendance Policy:**

Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

### **Student Academic Appeals Process**

Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

## **Technical Considerations for Online and Web-Assist Courses**

### **Minimum Hardware and Software Requirements:**

- Pentium with Windows XP or PowerMac with OS 10
- Wireless or network access
- Internet provider with SLIP or PPP
- 8X or greater CD-ROM
- 256 MB Ram
- Hard drive with 40MB available space
- 15" monitor, 800x600, color or 16 bit
- Sound card w/speakers
- Microphone and recording software
- Keyboard & mouse
- Microsoft Internet Explorer ver. 5.0 /plug-ins, Mozilla Firefox
- Participants should be proficient in the following:
  - Sending and receiving email
  - Internet searching
  - Microsoft Word
  - Acrobat PDF Reader
  - Windows or Mac O.S.

**Netiquette (online etiquette):** students are expected to participate in all discussions and virtual classroom chats when directed to do so. Students are to be respectful and courteous to others in the discussions. Foul or abusive

language will not be tolerated. When referring to information from books, websites or articles, please use APA standards to reference sources.

**Technical Support:** Students should call the Prairie View A&M University Helpdesk at 936-261-2525 for technical issues with accessing your online course. The helpdesk is available 24 hours a day/7 days a week. For other technical questions regarding your online course, call the Office of Distance Learning at 936-261-3290 or 936-261-3282

**Communication Expectations and Standards:**

All emails or discussion postings will receive a response from the instructor within 48 hours.

You can send email anytime that is convenient to you, but I check my email messages continuously during the day throughout the work-week (Monday through Friday). I will respond to email messages during the work-week by the close of business (5:00 pm) on the day following my receipt of them. Emails that I receive on Friday will be responded to by the close of business on the following Monday.

**Submission of Assignments:**

Assignments, Papers, Exercises, and Projects will distributed and submitted through your online course. Directions for accessing your online course will be provided. Additional assistance can be obtained from the Office of Distance Learning.

**Discussion Requirement:**

Because this is an online course, there will be no required face to face meetings on campus. However, we will participate in conversations about the readings, lectures, materials, and other aspects of the course in a true seminar fashion. We will accomplish this by use of the discussion board.

Students are required to log-on to the course website often to participate in discussion. It is strongly advised that you check the discussion area daily to keep abreast of discussions. When a topic is posted, everyone is required to participate. The exact use of discussion will be determined by the instructor.

**It is strongly suggested** that students type their discussion postings in a word processing application and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it should be copied and pasted to the discussion board.