

INSTRUCTOR: Richard West
OFFICE: 476
E-MAIL: rdwest@siu.edu
OFFICE HOURS: M10-1pm, TR12-1:30pm

REQUIREMENTS:

1. Pdf files located on lab computer
2. Scientific calculator
3. OPTIONAL: Probeware Lab Manual, 6th Ed., Cutnell & Johnson, John Wiley & Sons.

DESCRIPTION: **One two-hour laboratory per week.** Prerequisite: completion of or concurrent enrollment in PHYS 203A/205A; if the *corresponding lecture course is dropped, the laboratory course must also be dropped*. Lab fee: \$25.

CREDIT: 1 Hour

COURSE OBJECTIVES: Upon successful completion of this course, the student will be able to:

- Establish a hands-on understanding of undergraduate classical physics with an emphasis on mechanics
- To learn how to apply the laws of classical physics to everyday phenomena.
- Apply basic algebra to solve practical equations in a laboratory setting.
- Understand basic classical mechanics principals that may be applied in many daily life situations.

ATTENDANCE: Attendance is **mandatory**. Since there are no make-up labs, you must attend **every** lab session. Allowed absences are given for the following documented reasons only: (i) Religious observance; (ii) Military service; (iii) Bereavement (i.e., death in your immediate family); (iv) Official university business (properly documented using appropriate forms from an athletic or academic advisor; and (v) a properly documented medical reason. Note: *A slip stating that the student visited the Student Health Center does not fulfill this requirement.* Documentation that you were hospitalized or an official doctor's note is required.

LAB REPORTS:

- Choose the electronic workbook that corresponds to the lab scheduled for that specific week.
- The lab is divided into three sections: (1) Record data, (2) Analyze, and (3) Synthesize.
- Follow the computer instructions in each section and answer all required questions on the computer. Remember to include units when you report your results.
- Save the lab report to your flash drive as a PDF file. Do not save it on the lab computer.
- **Upload the file onto SIU Online (Desire2Learn), <https://online.siu.edu/>**
- Late reports will not be accepted.
- Lowest grade will be dropped.

No make-up labs will be allowed

PRE-LAB: The purpose of the pre-lab is to determine that you have read the lab manual ahead of time and have an idea what is going to be covered in that week's labs. Lowest grade will be dropped.

No make-up pre-lab will be allowed

Quiz: A written quiz will cover material from the previous three labs. Quizzes will be taken before the respective lab and will be between 15-20 minutes in length. Students will be graded on their ability to answer questions fully and completely. Lowest grade will be dropped.

A make-up quiz will be given for valid absence only

FINAL EXAM: There will be a comprehensive final exam given during the last week of classes.

GRADING:

WEIGHTS:	Lab Report	60%	SCHEME:	90.0 - 100 % = A
	Pre_Lab	05%		80.0 - 89.9 % = B
	Quizzes	15%		70.0 - 79.9 % = C
				60.0 - 69.9 % = D
	Final Exam	20%		0.0 - 59.9 % = F

Note: We will drop the lowest mark from each category of assignments (excluding the Final Exam)

**ACADEMIC
DISHONESTY
AND STUDENT
CONDUCT CODE**

We will follow this code as posted in <http://policies.siu.edu/policies/conduct.html>

NOTE: If you should drop the lecture course at some point during the semester, you must also drop the lab course.

**CELL PHONE
USE POLICY**

Cell phone use (of *any* kind – voice, texting, calculator, photography...) or the use of other personal electronic devices (unless approved by the instructor) is not allowed during the lab. Phones must be rendered *inaudible* (either turn them off completely or at least set them to silent mode) during the lab time. **Note:** During *exams and quizzes*, any cell phone or computer use will automatically constitute *cheating* (and will be dealt with as such).

**EMERGENCY
PROCEDURES**

Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on BERT's website at www.bert.siu.edu, Department of Safety's website www.dps.siu.edu (disaster drop down) and in Emergency Response Guideline pamphlet. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency. The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.

http://www.dps.siu.edu/Documents/Emergency_Response_Guide_2007.pdf

TENTATIVE LAB SCHEDULE

Week #	Week of	Activities	Lab Topic: Description
1	Aug.19 th	No Lab	Orientation: Introduction to course layout and policies
2	Aug.26 th		Motion in One Dimension: Using a motion sensor to match motion to a corresponding graph on a computer
3	Sep.02 rd		Position, Velocity and Acceleration: Understanding the relationship between changes in position and velocity as a function of time when the acceleration is constant
4	Sep.09 th		Projectile Motion, Parts 1 and 2: Measuring the time of flight of projectiles at different initial velocities, then repeating the experiment with an adjusted launch angle
5	Sep.16 th	Quiz 1	Newton's Second Law, Parts 1 and 2: One of the fundamental laws is explored using acceleration due to gravity with various mass quantities
6	Sep.23 th		Newton's Third Law, Parts 1 and 2: Understanding another fundamental law using two interacting PASS carts
7	Sep.30 th		Work and Energy: Exploring the relationship between work and kinetic energy
8	Oct.07 th	Quiz 2	Conservation of Energy: Studying the motion of an object on a ramp by comparing its potential and kinetic energies
9	Oct.14 th		Impulse vs. Change in Momentum: Discovering how a change in momentum directly results in an induced impulse
10	Oct.21 nd		Conservation of Linear Momentum, Parts 1 and 2: Exploring how total momentum is transferred between objects
11	Oct.28 th	Quiz 3	Rotational Motion: Comparing equations of linear motion with their rotational counterparts
12	Nov.04 th		Buoyant Force: Introduction to Archimedes' Principle and applying it to determine water density
13	Nov.11 th		Hooke's Law: Providing an introduction to kinetics of springs and the forces applied to them Simple Harmonic Motion: Mass on a spring: Use Hooke's Law to calculate the period of an oscillating spring
14	Nov.18 th	Quiz 4	Superposition: Constructive and destructive interference Interference in Sound: Behavior of two sounds that combine to produce beats
15	Nov.25 th	No Lab	Thanksgiving: Nov.27th – Dec.1st
16	Dec.03 rd		FINAL EXAM