

PHS 105

PHYSICS FOR NON-SCIENCE MAJORS

3 cr. (3-0)

COURSE DESCRIPTION:

A conceptual introduction to physics for the non-science major. The topics of motion, work, power, energy, waves, and electricity, and magnetism are emphasized.

PREREQUISITES:

MAT 051

COURSE OBJECTIVES:

As a general education requirement designed to increase the student's scientific literacy, this course will enable the student to:

1. demonstrate critical thinking in solving scientific problems.
2. apply scientific inquiry methods to integrate physical laws and everyday phenomena.
3. employ quantitative reasoning when analyzing physical phenomena.
4. illustrate how the values of integrity, honesty, and personal responsibility are inherent in the application of the scientific method.
5. recognize how diverse cultures have contributed to the advancement of science.
6. point out the global character of scientific research and development.
7. foster the use of a scientific vocabulary as it applies to chosen careers.

COURSE OUTLINE:

The focus of the course will be on classical physics. The following chapters or portions of the following chapters will be covered.

Chapter No.	Topic
Appendix	Systems of Measurement
	Mechanics
2	Newton's First Law of Motion – Inertia
3	Linear Motion
4	Newton's Second Law of Motion
5	Newton's Third Law of Motion
7	Energy
	Properties of Matter
13	Liquids
14	Gases and Plasmas

Chapter No.	Topic
	Heat
15	Temperature, Heat and Expansion
16	Heat Transfer
17	Change of Phase
18	Thermodynamics
	Sound
19	Vibrations and Waves
20	Sound

COURSE REQUIREMENTS:

1. Regular attendance required. *“Students are expected to attend all scheduled class periods for the courses in which they are enrolled unless they are participating in a scheduled, supervised College trip or function or unless they have been called for military duty, jury duty or subpoenaed as a witness during regular school days.”* (Rights and Responsibilities: *A Student Code of Conduct, John A. Logan College.*) Students will be allowed to make up work missed for these reasons if *I am notified* by the student *prior* to the absence. Roll will be taken at the beginning of each class period either orally or using an attendance sheet to be passed around. It is the student’s responsibility to sign the attendance sheet. Even if you are here, you will be considered absent if your name is not on this sheet.

Tardiness (not present at the time roll is being taken), being disrespectful to both the instructor and the class, is strongly discouraged. A student will be considered absent if not present when his/her name is called during roll. In addition, students leaving before the end of a class period (without prior permission) will have $\frac{1}{2}$ of an absence counted against them. **Arrive on time! Stay until dismissed.**

Good attendance counts toward course grade. Points will be added to your semester total for students absent from class - for any reason - 3 or fewer class periods during the semester.

Poor attendance counts against course grade. More than 5 absences will be considered an excessive number of absences. Consequently, your course grade will be decreased one letter grade for every five (5) unexcused absences. For an absence to be excused you must contact me (voicemail, email or personal contact) no later than the end of the day of the absence with a legitimate reason for your absence.

2. Reading and thoroughly understanding the assigned chapters of the text. The text material must be read before the lecture over the same. **Come to class prepared!**

3. The Physics Place Web site: www.physicsplace.com. A wealth of online resources is available on this web site: tutorials, video clips, interactive figures, lessons, exercises, quizzes, simulations and animations, etc. Your learning will be both enhanced and more enjoyable if you regularly use these online resources.
4. Homework. *Clear, concise* answers to all the *Review Questions* and selected *One-Step Calculations, Exercises* and *Problems* for a chapter will be picked up the day of the test for that chapter. *Late Homework will not be accepted.* Your answers (only) to the Homework must follow the “*Instructions for PHS 105 Homework*” handout to receive full credit. The answers to all the odd-numbered *Exercises* and *Problems* will be on reserve in the Library. The chapter tests are largely taken from the end of the chapter *Review Questions, Exercises, One-Step Calculations* and *Problems*. It is not possible to do well in this course without doing all the assigned homework (as a minimum) and thoroughly understanding it.
5. Quizzes and Worksheets. Some *Conceptual Physics Practice Pages* and other worksheets will be given as either in-class or take-home exercises. On occasion, short in-class pop quizzes will be given to determine if students are keeping up with the lectures. These may be multiple choice, fill in, short answer or true and false and will cover the text material through the previous lecture. *Keep ahead!*
6. Chapter Tests. Based on (sometimes taken directly from) your text reading, homework, lecture and text examples. These tests *will be* both conceptual *and* quantitative. Some tests will cover two or more chapters.
(**Note:** Physics formulae need not be memorized for this class. Any needed formulae will be supplied with the test.)
7. Classroom Participation. Students will be expected to answer during classroom discussions questions related to the text reading and to their homework. Questions and problems will be discussed in class and, on occasion, worked out in small groups during class. ***Come to class prepared!***
8. Student Conduct
 - a. Students are expected to follow the policies set forth in the Rights and Responsibilities: A student Code of Conduct published by the College.
 - b. Cell phones must be turned off BEFORE entering class and may not be used in class (no voice calls and no texting).
 - c. Use of iPods, MP3 players, CD players, radios, personal pagers, earphones, and similar devices are prohibited in the classroom.

- d. Computers may be used in class to take notes only—no emailing, instant messaging, surfing the web, gaming, etc. In addition, so as not to distract other students, students using computers must sit in the back row with the audio muted.
- e. Food or drink is prohibited in the classroom (this is a college wide policy and is posted in each classroom). If you have food or drink with you, place it in your bag or on the floor-not on your desk.
- f. No studying other course materials or reading novels, newspapers, magazines, etc in class.
- g. No chatting in class.
- h. Students will be warned once of any violation of student conduct and will then be asked to leave the classroom if the disruptive behavior continues. Repeated offenses will result in the student not being allowed to attend the class and finally being asked to drop the class.

Student Success Center. Tutors may be obtained through the Student Success Center. Contact the staff in C219 if this service is desired. John A. Logan College will make reasonable accommodations for students with documented disabilities under Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990. Any student with a disability that may have some impact on work in this class, who feels she/he needs an accommodation, should make an appointment with the Coordinator of Services for Students with Disabilities on campus, Jennifer Frost, Room C219B, Ext. 8516. Before services can be provided, this advisor must determine eligibility and arrange appropriate academic adjustments. ***It is the student's responsibility to register in advance of a school term with this office and to turn in a schedule each term to ensure that there is every opportunity for success in this class.***

English Writing Center/Tutoring. For assistance with writing assignments in any college course, students are encouraged to visit "The Write Place" in Room E109. English instructors are available for one-on-one tutoring each semester during hours posted at the center.

Financial Aid. Students who receive financial assistance and completely withdraw from classes prior to 60% of the semester being completed (approximately 2-3 weeks after midterm) could be responsible to return a portion of their Federal Pell Grant award. Prior to withdrawing from courses, students should contact the Financial Aid Office.

Course Withdrawal Information. It is expected that you will attend this class regularly. If you stop attending for any reason, you should contact your advisor and withdraw officially to avoid the posting of a failing grade (an E) to your transcript. It is also advisable to discuss the situation with your instructor before dropping.

METHOD OF EVALUATION:

1. Missed Tests:
 - a. In the case of an anticipated school sponsored activity or **unavoidable** conflict, arrangements may be made **in advance** to take the test **before** the regular test date.
 - b. In the case of a **sudden** illness or **valid** emergency on the day of the test, the test may be made up **before the next** class period **if and only if** I am called before the hour of the test and notified of the sickness or emergency.
 - c. All other missed tests will receive a grade of zero.

2. Lowest Grade Dropped:
 - a. The lowest test grade of the semester will be dropped.
 - b. The first missed test-**missed for any reason, other than 1a or 1b above** - will count as the dropped grade.

3. The final course grade will be determined as follows:

Homework	20%
Quizzes and Worksheets	10%
<u>Chapter Tests</u>	<u>70%</u>
Attendance	+1%

4. Letter grades will be assigned as follows:

A	=	89-100%
B	=	77-88%
C	=	65-76%
D	=	53-64%
E	=	0-52%

Note 1: Due to the generous grading scale, individual or course grades will **not** be curved.

Note 2: If your cumulative, end-of-semester percentage grade is on the line between letter grades, your final course letter grade will depend on your attendance and class participation.

METHOD OF PRESENTATION:

Lecture-discussion with occasional demonstrations 3 hours per week.

TEXT:

Conceptual Physics 10th Ed., by Paul G. Hewitt (with access code to the web site)
(Bring to every class period!)

Physics Place Web site: www.physicsplace.com (information in front of text)

Supplementary Videos: *Conceptual Physics Alive* (34 parts; by Paul Hewitt)

Required Materials: Ruler, scientific calculator and access to a computer with a connection to the Internet.

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John A. Logan College Telephone Numbers

Cartersville and Williamson County	985-3741 (operator)
	985-2828 (direct extension access)
Carbondale and Jackson County	549-7335 (operator)
	457-7676 (direct extension access)
Du Quoin	542-8612
West Frankfort.....	937-3438
Crab Orchard, Gorham, & Trico areas	1-800-851-4720
TTY (hearing-impaired access)	985-2752

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