SCIT 1320
Course Syllabi

Physics for Allied Health (SCIT 1320)

Credit: 3 semester credit hours (3 hours lecture)

Prerequisite: MATH 1314

Course Description

An introduction to physics with emphasis on applications to health related fields of study. Topics include forces, motion, work and energy, fluids, heat, electricity and magnetism, wave motion, sound, electromagnetic radiation, and nuclear radiation.

Required Textbook and Materials

1. *Physics with Health Science Applications* by Paul Peter Urone, 1st edition. John Wiley & Sons, Incorporated.
    a. ISBN-10: 0471603899 or ISBN-13: 9780471603894.
2. Three ring binder.
3. Tabbed dividers.
4. Scientific (non-graphing) calculator.
5. Pens or pencils.

Course Objectives

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

1. Explain and apply the concepts of measurements, standard units, kinematics, forces, and work as applicable to the health fields.
2. Demonstrate knowledge of fluid dynamics, electric circuits, electricity and magnetism, optics and optical instrumentation applicable to health fields.
3. Describe and apply the relationship of electromagnetic radiation, nuclear radiation, and radioactivity as applied to health fields.
4. Define radioactive isotopes and half-life and summarize their interaction with biological organisms.

Course Outline

1. Chapter 1 Introduction
    a. Class Rules
    b. Why Study Physics?
    c. Scientific Notation
    d. Calculator Use
    e. Conversions
        i. British-British
        ii. Metric-Metric
        iii. Metric-British
2. Chapter 2 Motion
    a. Velocity
    b. Acceleration
    c. Falling Bodies
3. Chapter 3 Force
    a. Law of Inertia
    b. Friction
    c. Mass Versus Weight
    d. Vectors
        i. Definitions
        ii. Graphs
4. Chapter 5 Temperature and Heat
    a. Properties of Matter
    b. Heat
    c. Heat Transfer
    d. Specific Heat
    e. Calorimetry
    f. Change of Phase
5. Chapter 6 Fluids and Pressure
    a. Hydrostatic Pressure
    b. Pascal's Principle
    c. Air Pressure
6. Chapter 8 Elasticity and Waves; Sound
    a. Doppler Effect
    b. Resonance
7. Chapter 10 Introduction to Electricity and Magnetism
    a. Introduction
    b. Applications
8. Chapter 11 Simple Electric Circuits
    a. Simple Circuits
    b. Laws
9. Chapter 16 Electromagnetic Radiation: Introduction to Modern Physics
    a. Nature of light
    b. Speed of light
10. Chapter 17 Atomic Physics
    a. Atomic structure
    b. Lasers
    c. X-Rays
11. Chapter 18 Radioactivity and Nuclear Physics
    a. Radioactivity decay
    b. Radiation

Grade Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Course Evaluation

Final grades will be calculated according to the following criteria:

1. 3-4 Unit Tests	50%
2. Conceptual Lab Assignments	10%
3. Class Binder	10%
4. Homework	10%
5. Comprehensive Final Exam	20%

Course Requirements

1. Semester binder containing all handouts, homework, tables, charts, formula sheets, and tests.
2. Chapter homework.
3. Conceptual Lab Assignments
4. Unit Tests
5. Comprehensive Final Exam

Course Policies

1. Each unit has assigned homework problems. All homework is due on the testing day for that unit and must be turned in inside a binder containing dividers as assigned by the instructor. All calculations must be shown to receive credit. Completing only odd problems and skipping even problems will result in a grade of ZERO (0).
2. Makeup work may only be made up at the instructor's discretion. It is the responsibility of the student to contact the instructor as soon as possible to arrange for makeup work. All makeup work must be completed within one week of the original due date.
3. There is a 20 point penalty for work turned in less than one week late. There is a 50 point penalty for work turned in more than one week late, but less than two weeks late. Work turned in more than two weeks late will not be accepted.
4. Students will not be automatically dropped from the class due to poor attendance or grades. Discontinuing class attendance without properly submitting a drop request will result in a failing grade (F).
5. All electronic devices (including cell phones) need to be turned off or on silent unless prior approval has been given by instructor to have them set to audible. (Permission will only be given in emergency situations.)
6. Children are **not allowed** in the lecture class at any time.
7. **No** food, drinks, or use of tobacco products in class.
8. Attendance in class is vital to understanding physics. If an absence is unavoidable, arrange with the instructor to attend another session of the class. If you are absent, it is your responsibility to obtain copies of at least two other student's notes and rewrite them in your notebook. If you need further assistance, please set up an appointment with the instructor for a tutoring session. Excessive unexcused absences (per instructor's discretion) will result in a ten point deduction from the final semester grade.
   (Permission will only be given in emergency situations.)

9. During class time, **all electronic devices need to be turned to silent or off,** unless prior approval has been given by instructor to have them set to vibrate. (Permission will only be given in emergency situations.)
   It shall be considered a breach of academic integrity (cheating) to use or possess on your body any of the following devices during any examination unless it is required for that examination and approved by the instructor:

   - **Cell phone**
   - **smart watch/watch phone**
   - **laptop**
   - **tablet**
   - **electronic communication devices (including optical)**
   - **earphones connected to or used as electronic communication devices.**

   1st Offense: The exam will be taken from the student and the student will receive a grade of ZERO (0) for the exam which will be averaged into the student's class average and there will be NO MAKEUP of the test.

   2nd Offense: The student will be removed from the class and will receive a grade of FAILING (F) for the entire lecture and lab grade.

   Students with special needs and/or medical emergencies or situations should communicate with their instructor regarding individual exceptions/provisions. It is the student's responsibility to communicate such needs to the instructor.

Technical Requirements **(for courses using Blackboard)**

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:
https://help.blackboard.com/en-us/Learn/9.1_2014_04/Student/015_Browser_Support/015_Browser_Support_Policy
A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building. You may also visit the online resource at http://www.lit.edu/depts/stuserv/special/defaults.aspx

Student Code of Conduct Statement

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

Starfish

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.