

ARIZONA WESTERN COLLEGE  
SYLLABUS

## PHY 121 UNIVERSITY PHYSICS I

Credit Hours: 4 Lec 4 Lab 2

General Education Course: G (Global Awareness)

PREREQUISITE: MAT 220

COREQUISITE: MAT 230

NOTE: MAT 230 may be completed prior to taking PHY 121

COURSE DESCRIPTION

Introduction to mechanics. Analysis of the interactions between a system and its environment to determine changes in the system's position, velocity, momentum, and mechanical energy. Application of Newton's laws and conservation laws to the behavior of physical systems.

1. COURSE GOALS

- 1.1 Engage students in collecting, analyzing, and communicating information about physical systems.
- 1.2 Engage students in scientific inquiry by constructing knowledge through observation.
- 1.3 Engage students in developing skills adaptable to changing environments by applying physics principles in a variety of situations.

2. OUTCOMES

Upon completion of this course, students will be able to:

- 2.1 identify and classify the interaction forces acting on a system.
- 2.2 represent the forces acting on a system using free-body and force-vector diagrams.
- 2.3 determine the net force acting on a system.
- 2.4 analyze changes in a system's position, velocity, momentum, and mechanical energy due to interactions between the system and its environment.
- 2.5 collect information about a physical system by observation and measurement.
- 2.6 communicate information about a physical system.

3. AWC GENERAL EDUCATION (GE) OUTCOMES3.1 QUANTITATIVE ANALYSIS

- Identify and extract relevant data from given mathematical or contextual situations
- Select known models or develop appropriate models that organize the data into: tables or spreadsheets (with or without technology); graphical representations (with or without technology); symbolic/equation format
- Obtain correct mathematical results and state those results with appropriate qualifiers and use the results to: determine whether they are realistic in terms of original data/problem; determine whether the mathematical model/representation of data is appropriate; describe trends in a table, graph, or formula and make predications based on these trends; draw qualitative conclusions in written form; apply them to real world problems

3.2 SCIENTIFIC LITERACY

- Utilize data to communicate and apply an understanding of scientific logic and/or quantitative reasoning
- Analyze an article in popular literature that pertains to science and interpret the findings in terms of public policy, personal experience, or daily life

4. METHODS OF INSTRUCTION

- 4.1 Lecture

- 4.2 Laboratory
5. LEARNING ACTIVITIES
- 5.1 Cooperative-learning team activities
  - 5.2 Observation, measurement, and data-analysis activities
  - 5.3 Communication activities
  - 5.4 Learning-by-reading activities
  - 5.5 Qualitative and quantitative homework activities
6. EVALUATION
- 6.1 Tests
  - 6.2 Laboratory
  - 6.3 Homework
7. STUDENT RESPONSIBILITIES
- 7.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
  - 7.2 Classroom Assignments: Students are responsible for work missed and for completing all work before the next class meeting. Students are responsible for participating in all oral drills and for taking all exams.
  - 7.3 If a student is unable to attend the course or must drop the course for any reason, it will be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course may be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.
  - 7.4 Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through AccessABILITY Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.
  - 7.5 Academic Integrity: Any student participating in acts of academic dishonesty including, but not limited to, copying the work of other students, using unauthorized “crib notes”, plagiarism, stealing tests, or forging an instructor’s signature—will be subject to the procedures and consequences outlined in AWC’s Student Code of Conduct.
  - 7.6 Textbooks and materials: Students are required to bring notebook or looseleaf book, pens, pencils, dictionaries, and purchase textbook required for class.
  - 7.7 Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for “No Show” reporting during the first 10 days of each semester.  
Students who have enrolled but have never attended class may be issued a “No Show” (NS) grade by the professor or instructor and receive a final grade of “NS” on their official academic record. An NS grade may result in a student losing their federal financial aid.  
For online classes, *student attendance in an online class is defined as the following* (FSA Handbook, 2012, 5-90):
    - Submitting an academic assignment
    - Taking an exam, an interactive tutorial or computer-assisted instruction
    - Attending a study group that is assigned by the school
    - Participating in an online discussion about academic matters
    - Initiating contact with a faculty member to ask a question about the academic subject studied in the course