

**Course Outline for:** PHYS 1110 College Physics 1**A. Course Description:**

1. Number of credits: 4
2. Lecture hours per week: 3  
Lab hours per week: 2
3. Prerequisites: MATH 1100 (C- or better); OR  
Concurrent registration with an override; OR  
Eligible for MATH 1100 (C- or better, valid for 5 years); OR  
MATH 1150 (C- or better, valid for 5 years); OR  
Placement Level of Math 1150/1400/1500:  
High School GPA of 2.80-3.29 and passed Pre-Calculus or a  
higher-level math course; OR  
ACT Math Sub-Score of 22+; OR  
Accuplacer Advance Algebra score of 275-289 and Quantitative  
Reason Score of 285+
4. Corequisites: None
5. MnTC Goals: Goal #3 Natural Science

This is the first semester of a two-semester sequence of non-calculus, introductory physics. This course uses algebra and trigonometry. Topics include kinematics, dynamics, gravitation, momentum, energy, heat, and fluids.

**B. Date last reviewed/updated:** October 2023**C. Outline of Major Content Areas:**

1. Kinematics.
2. Dynamics.
3. Gravitation.
4. Momentum.
5. Energy.
6. Heat.
7. Fluids.

**D. Course Learning Outcomes:**

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

1. Demonstrate an understanding of scientific theories and principles by: (Goal 2a, 2b, 2c, 3a)
  - a. Stating and applying the fundamental laws and concepts relating to the course topics.
  - b. Identifying which physical laws and principles are appropriate for the solution of physics problems relating to various applications.

- c. Using the appropriate physical laws and principles and College Algebra concepts and techniques to develop the mathematical expressions required to solve physics problems; solving those mathematical expressions.
    - d. Using the terminology of physics correctly.
  2. Formulate and test hypotheses by: (Goal 2a, 2b, 2c, 3b)
    - a. Performing laboratory, simulation, or field experiments.
    - b. Collecting data and analyzing it statistically and graphically.
    - c. Identifying sources of error and uncertainty.
    - d. Estimating the magnitude of error and uncertainty in data.
    - e. Using appropriate software to perform experiments and analyze data.
  3. Communicate experimental findings, analysis, and interpretations by: (Goal 2a, 2b, 2c, 3c)
    - a. Presenting laboratory results orally.
    - b. Orally explaining analysis and interpretations of laboratory results and relating the results to physics concepts and theories.
    - c. Presenting written reports that interpret laboratory results and relate them to physics concepts and theories.

**E. Methods for Assessing Student Learning:**

Methods for assessment may include, but are not limited to, the following:

1. Written and/or oral reports
2. Homework
3. Projects
4. Quizzes
5. Exams
6. Final Exam

**F. Special Information:**

Basic geometry, the Pythagorean Theorem, and right triangle trigonometry are reviewed and used in this course. This course is not recommended for pre-engineering, math, computer science, or physical science majors.