

# Minnesota State University Moorhead

## PHYS 160: Physics I with Algebra & Lab

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 4

Lab Hours/Week: 0

OJT Hours/Week: \*.\*

Prerequisites:

This course requires any of these nine prerequisite categories

1. Both of these

MATH 127 - College Algebra

MATH 143 - Trigonometry

Or

2. Both of these

MATH 127L - College Algebra with Lab

MATH 143 - Trigonometry

Or

3. MATH 142 - Pre-Calculus

Or

4. MATH 229 - Topics in Calculus

Or

5. A score of 24 on test ACT Math

Or

6. A score of 50 on test Accuplacer College Level Math

Or

7. A score of 580 on test OLD-SAT Math

Or

8. A score of 580 on test SAT Math Composite

Or

9. A score of 255 on test Accuplacer NG Advanced Algebra Functions

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

Concepts and principles of elementary physics presented in a guided activity-based format which integrates lecture and laboratory using cooperative group learning techniques. Includes kinematics and mechanics. MnTC Goal 3.

**B. COURSE EFFECTIVE DATES:** 05/21/2021 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

### D. LEARNING OUTCOMES (General)

1. Participants will become familiar with a variety of physics concepts including Newton's Laws, work, energy, momentum, frames of reference and oscillations.
2. Participants will develop critical thinking skills.
3. Participants will develop estimating and unit analysis skills.
4. Participants will participate in inquiry-based experiences.
5. Participants will become familiar with the scientific method.
6. Participants will develop laboratory skills and technical writing skills
7. Participants will develop data analysis and error analysis within a laboratory experiment.

## **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

### **Goal 03 - Natural Science**

1. Demonstrate understanding of scientific theories.
2. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.
4. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

## **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

## **G. SPECIAL INFORMATION**

None noted