



Course Information

Division	Science/Mathematics
Contact Hours	90
Lecture Hours	45
Lab Hours	45
Total Credits	4

Prerequisites

MATH 151, Recommended: MATH 157 and MATH 159 or MATH 164.

Course Description

This course is a liberal arts course in the fundamental principles of physics. Units include measurement, kinematics, mechanics, rotational motion, fluids, temperature and heat, and waves and sound. This course is designed to fulfill the physics requirement in pre-medicine, pre-dentistry, pre-law, pre-architecture, pre-chiropractic and similar pre-professional programs. This course should not be taken as a substitute for pre-engineering physics or other related disciplines. This course requires laboratory work.

This course is approved as a General Education competency satisfier.

General Education Goal: Goal One: Critical Thinking

Competency: Understand and apply the elements of scientific inquiry and scientific principles in a natural science college laboratory course setting

Learning Outcome: Students will use the scientific method to define a problem, utilize appropriate methods to solve the problem, and propose and evaluate a solution to the problem.

General Education Learning Objectives

- Observe and describe natural phenomena and formulate hypotheses.
- Plan and implement scientific experiments to test hypotheses.
- Utilize scientific laboratory skills for data collection within a college laboratory setting.
- Evaluate experimental data and propose solutions based on this data.
- Evaluate the proposed implications of a solution.

Course Outcomes

In order to evidence success in this course, the students will be able to:

- Describe and define measurements in the SI, US customary, and cgs systems.
Applies to General Education Objective
 - Evaluate experimental data and propose solutions based on this data.
- Identify the four kinematic equations of motion.
Applies to General Education Objective
 - Observe and describe natural phenomena and formulate hypotheses.
 - Plan and implement scientific experiments to test hypotheses.
 - Utilize scientific laboratory skills for data collection within a college laboratory setting.
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3. Solve for each variable in the kinematic equations.

Applies to General Education Objective

- A. Observe and describe natural phenomena and formulate hypotheses.
- B. Plan and implement scientific experiments to test hypotheses.
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4. Describe the relationship between horizontal and vertical motion.

Applies to General Education Objective

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- D. Evaluate experimental data and propose solutions based on this data.
- E. Evaluate the proposed implications of a solution.

5. Compute products and sums of vectors.

Applies to General Education Objective

- D. Evaluate experimental data and propose solutions based on this data.

6. State Newton's dynamic equations.

Applies to General Education Objective

- A. Observe and describe natural phenomena and formulate hypotheses.
- B. Plan and implement scientific experiments to test hypotheses.
- C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
- D. Evaluate experimental data and propose solutions based on this data.
- E. Evaluate the proposed implications of a solution.

7. Solve for each variable in Newton's dynamic equations.

Applies to General Education Objective

- A. Observe and describe natural phenomena and formulate hypotheses.
- B. Plan and implement scientific experiments to test hypotheses.
- C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
- D. Evaluate experimental data and propose solutions based on this data.
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8. Describe work in a scientific way.

Applies to General Education Objective

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- B. Plan and implement scientific experiments to test hypotheses.
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- E. Evaluate the proposed implications of a solution.

9. Calculate the amount work done in a variety of situations, including friction.

Applies to General Education Objective

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10. Compare rotational and linear motion.

Applies to General Education Objective

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- C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
- D. Evaluate experimental data and propose solutions based on this data.
- E. Evaluate the proposed implications of a solution.

11. Define and give an example of the three common states of matter.

Applies to General Education Objective

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12. Explain, and give examples of, the First and Second Laws of thermodynamics.

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13. Use sound as an example to describe standing waves.

Applies to General Education Objective

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- E. Evaluate the proposed implications of a solution.