

Course Outcome Summary

General Education Satisfier Course

PHYSC 151 Physical Science

Course Information

Division	Science/Mathematics
Contact Hours	75
Lecture Hours	45
Lab Hours	30
Total Credits	4

Prerequisites

English 090 and Reading 090 and MATH 092 or MATH 150 or qualifying score on accepted placement tests

Course Description

This course serves as an introduction to physical science for both applied and non-science majors. Selected topics on astronomy, chemistry, geology and physics are included. Emphasis is placed on understanding the fundamental principles of the physical sciences. It will also include a discussion of the limitations and potential applications of the physical sciences. This course requires laboratory work.

This course is approved as a General Education competency satisfier.

General Education Goal: Critical Thinking

Competency: Understand 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:

- Measure and convert using standard units.
Applies to General Education Objectives
 - Utilize scientific laboratory skills for data collection within a college laboratory setting.
 - Evaluate experimental data and propose solutions based on this data.
- Perform accurate quantitative measurements using laboratory instrumentation, interpret experimental results, perform calculations on these results and draw reasonable conclusions.
Applies to General Education Objectives
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- E. Evaluate the proposed implications of a solution.
3. Describe the processes and procedures in the scientific method.
Applies to General Education Objectives
 - 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.
4. Demonstrate the application of quantitative skills (such as statistics, mathematics, and the interpretation of graphical data, etc.) to scientific problems.
Applies to General Education Objectives
 - 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.
5. Understand the fundamentals and application of current scientific theories.
Applies to General Education Objectives
 - 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.
6. Explain and apply the concepts of motion, force, and energy.
Applies to General Education Objectives
 - 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. Discuss the current state of the world's energy use and then compare and contrast our future energy use options.
Applies to General Education Objectives
 - E. Evaluate the proposed implications of a solution.
8. Explain universal gravitation and integrate this with an understanding of the earth's position and its motion within our solar system.
Applies to General Education Objectives

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- 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.
9. Distinguish and describe the types of waves, wave motion, and behavior of waves.
Applies to General Education Objectives
- A. Observe and describe natural phenomena and formulate hypotheses.
10. Describe and interpret statements and questions concerning the forms and states of matter, the structure of the atom, arrangement of electrons, and how this relates to the organization of the periodic table.
Applies to General Education Objectives
- 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.