Syllabus
PHYS 1100
Physical Science
2022

Committee Members:

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Facilitator: David Heidt

The Institution agrees to the contents in this syllabus including course prefix, number, course description and other contents of this syllabus.

Chief Academic Officer, Central Community College	04/07/2022	Adopt
Loretta Broberg Chief Academic Officer, Little Priest Tribal College	03/28/2022	Adopt
Tom McDonnell Chief Academic Officer, Metropolitan Community College	03/28/2022	Decline
Jody Tomanek Chief Academic Officer, Mid-Plains Community College	03/28/2022	Adopt
Chief Academic Officer, Nebraska Indian Community College	04/04/2022	Adopt
Michele Gill Chief Academic Officer, Northeast Community College	03/28/2022	Adopt
Joel Michaelis Chief Academic Officer, Southeast Community College	04/04/2022	Adopt
Grant Wilson Chief Academic Officer, Western Nebraska Community College	03/28/2022	Adopt

I. CATALOG DESCRIPTION

PHYS1100
Physical Science

Prerequisite: None

Description: A survey course in the physical sciences with emphasis on scientific processes and problem solving. Areas of study will include selected topics in physics, chemistry, astronomy, geology and meteorology. A scheduled laboratory will supplement classroom activities.
Credit Hours: 4 semester hours or 6 quarter hours
Lecture/classroom Hours: 45 hours
Laboratory Hours: 30 hours

II. COURSE OBJECTIVES/COMPETENCIES

Course will:

A. Develop skills in measuring and converting units within the metric systems
B. Foster critical thinking skills using the scientific method in examining physical science concepts
C. Relate scientific issues to societal and individual problems
D. Relate basic physical science concepts to everyday experiences
E. Explain basic chemical principles
F. Describe the basic structure, features and workings of the solar system and universe
G. Explain basic weather principles
H. Describe the dynamic nature of earth and its cycles

III. STUDENT LEARNING OUTCOMES:

Students will be able to:

*From Objective/*Competency A*:*
1. Demonstrate knowledge of different types of measurements and units such as CGS and MKS (SI)
2. Demonstrate knowledge of measurements in different systems and co-relate them.

*From Objective/*Competency B:
1. Solve problems relating to Newton's Laws of Motion and Gravitation
2. Evaluate situations involving momentum, energy and their conservation principles.

*From Objective/*Competency C:
1. Demonstrate knowledge of how physical changes affect the environment.
2. Describe available energy resources and how they affect global climate changes

*From Objective/*Competency D:
1. Describe heat flow relative to temperature
2. Demonstrate knowledge of electricity including magnetic fields and various phenomena

From Objective/Competency E:
1. Demonstrate knowledge of chemical bonds and the properties of substances
2. Identify the characteristics of elements based on the periodic table

From Objective/Competency F:
1. Demonstrate knowledge of uniform circular motion and elliptical motion with regard to the motion of celestial objects
2. Describe the components of the solar system

From Objective/Competency G:
1. Demonstrate knowledge of weather fronts and systems.
2. Explain the seasonal changes in weather patterns

From Objective/Competency H:
1. Demonstrate knowledge of the basic structures of a dynamic earth
2. Demonstrate knowledge of the components of earth materials

IV. COURSE CONTENT/TOPICAL OUTLINE

(Order of presentation at instructor's discretion)

1. Physics
2. Chemistry
3. Meteorology
4. Geology
5. Astronomy

V. INSTRUCTIONAL MATERIALS

A. Suggested Textbooks

1. Krauskopf, et.al., *The Physical Universe*, McGraw-Hill.
2. Shipman, et.al., *An Introduction to Physical Science*, Brooks/Cole
3. Tillery, *Physical Science*, McGraw-Hill
4. Open Educational Resources

B. **Laboratory Manual/Book:**

1. Tillery, Laboratory Manual to accompany Physical Science; McGraw-Hill
2. Garretson, Laboratory Studies in the Physical Sciences; Wm C Brown Publishers
3. Physical Science with Vernier
4. Instructor Generated Lab Manual/Worksheets

VI. METHOD OF PRESENTATION

Instructors will make use of varied pedagogical techniques including several of the following:

A. Lectures
B. Discussion groups
C. Individual and/or collaborative projects
D. Debates, research, peer response, journals, essays, conferences
E. Computer –assisted instruction, interactive/creative methods, multi-media
F. Field trips
G. Online

VII. METHODS OF EVALUATION

A. As determined by the instructor, course grades will be based on one or more of the following:

1. Class and group participation
2. Daily work, exams, presentations
3. Projects, papers, and/or a portfolio

B. The instructor will distribute and discuss evaluation and grading policies with students at the beginning/during of each term.

VIII. INSTITUTIONAL DEFINED SECTION