


Syllabus

PHYS1100
Physical Science

2016








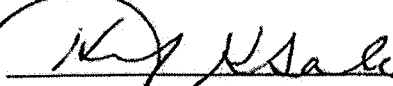
Committee Members:

Dorothy Condreay	Central Community College
No Representative	Little Priest Tribal College
No Representative	Metropolitan Community College
Jared Daily	Mid-Plains Community College
No Representative	Nebraska Indian Community College
Kim Timperly	Northeast Community College
Dolen Freeouf	Southeast Community College
No Representative	Western Nebraska Community College


 Facilitator: Dorothy Condreay, Central Community College
 Date Reviewed: January 29, 2016

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

Please select one option

	<u>Adopt</u>	<u>Decline</u>	<u>Not Offered</u>	<u>Date</u>
<u></u> Deb Brennan, Central Community College	<u>X</u>	<u> </u>	<u> </u>	<u>9-8-16</u>
<u></u> Betty Redleaf, Little Priest Tribal College	<u> </u>	<u>X</u>	<u> </u>	<u>9-8-2016</u>
<u></u> Tom McDonnell, Metropolitan Community College	<u> </u>	<u> </u>	<u>X</u>	<u>2/24/17</u>
<u></u> Jody Tomaneck, Mid-Plains Community College	<u>X</u>	<u> </u>	<u> </u>	<u>9/7/16</u>
<u></u> Mary Johnson, Nebraska Indian Community College	<u> </u>	<u>X</u>	<u> </u>	<u>9-8-16</u>
<u></u> John Blaylock, Northeast Community College	<u>X</u>	<u> </u>	<u> </u>	<u>9-7-16</u>
<u></u> Dennis Headrick, Southeast Community College	<u>X</u>	<u> </u>	<u> </u>	<u>9/7/16</u>
<u></u> Kim Dale, Western Nebraska Community College	<u>X</u>	<u> </u>	<u> </u>	<u>9.7.16</u>

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:

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. Textbooks

1. Krauskopf, et.al., *The Physical Universe*, 15th Edition, 2014: McGraw-Hill.
2. Shipman, et.al., *An Introduction to Physical Science*, 14th ; 2016; Brooks/Cole
3. Tillery, *Physical Science*, 10th Edition; 2014; McGraw-Hill

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

C. Other Resources

1. Basic laboratory equipment.
2. Online assignments
3. Videos
4. Class demonstrations

D. Outside reading/research

See specific course outline
Selected outside readings on current topics

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

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.