

**SEWARD COUNTY COMMUNITY COLLEGE  
COURSE SYLLABUS**

**I. TITLE OF COURSE: PS1115 - Physical Science**

**II. COURSE DESCRIPTION: 5 credit hours  
3 credit hours of lecture and 4 credit hours of lab per week.**

This is a general survey course and lab with topics in physics, astronomy, and chemistry, with emphasis on basic universal laws. Included are topics chosen in measurement, motion, gravitation, energy, electricity and magnetism, atomic structure, chemical change, nuclear change, light and waves, solar system and stars. Intended for the non-physical science major. For each unit of credit, a minimum of three hours per week with one of the hours for class and two hours for studying/preparation outside of class is expected.

EduKan course number:PH176

Pre-requisite:

Writing level of English Composition I, Intermediate Algebra or equivalent of each.

**III. PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:**

The Science Program at SCCC provides opportunities to improve and enhance each student's understanding and comprehension of the natural world through a variety of courses and experience to develop a scientifically literate citizen.

**IV. TEXTBOOK AND MATERIALS:**

Hewitt, Suchocki, and Hewitt. Conceptual Physical Science, 6th edition

**V. SCCC OUTCOMES:**

I: Read with comprehension, be critical of what they read, and apply knowledge gained to real life

II: Communicate ideas clearly and proficiently in writing, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.

III: Communicate their ideas clearly and proficiently in speaking, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.

IV: Demonstrate mathematical skills using a variety of techniques and technologies.

V: Demonstrate the ability to think critically by gathering facts, generating insights, analyzing data, and evaluating information

VII: Demonstrate knowledge and comprehension of the diverse cultures, creeds, and lifestyles of America and the world community.

VIII: Show the ability to contribute to political, civic, and community responsibilities as an informed member of society

IX: Exhibit workplace skills that include respect for others, teamwork competence, attendance/punctuality, decision making, conflict resolution, truthfulness/honesty, positive attitude, judgment, and responsibility

## **VI. COURSE OUTCOMES:**

1. To understand and apply the scientific ideology.
2. To recognize the importance and value of science in daily life.
3. To communicate in a literate manner in elementary scientific discussions.
4. To describe nature in a general scientific way.
5. To better understand their role in society and the influence of science on this society.
6. To collect data and create a general conclusion.
7. To read articles from periodicals and demonstrate understanding of a chosen topic.
8. To apply the scientific method to a variety of applications.
9. To measure objects using the correct significant digits.
10. To evaluate accuracy and precision within data collected.
11. To understand mass, weight and inertia.
12. To describe motion using Newton's Laws.
13. To understand the concepts and differentiate distance/displacement, speed/velocity, and acceleration.
14. To understand momentum and impulse
15. To understand the physical characteristics of simple machines.
16. To grasp an understanding of the law of gravitation.
17. To apply the concepts of work, energy, and power.
18. To understand the mechanics of projectiles.
19. To be able to compare different temperature scales.
20. To have an understanding of the laws of thermodynamics.
21. To generalize basic ideas of electricity.
22. To demonstrate the use of magnetic fields.
23. To understand the concepts of wave behavior and relate these to sound and light.
24. To explain basic concepts of reflection and refraction.
25. To interpret the periodic table and relate it to simple atomic structure.
26. To generalize nuclear reactions, radioactivity, and half lives.
27. To understand the states of matter as well as chemical and physical properties of matter.
28. To generalize basic chemical reactions.
29. To recognize basic organic function groups and compounds.
30. To understand the classification of minerals.
31. To recognize major geological periods.
32. To explain the motion of astronomical bodies.
33. To describe the solar system and the objects that it contains.
34. To explain the evolution and life of a star.
35. To discuss galaxies and the concept of an evolving universe.

## **VII. COURSE OUTLINE:**

1. Force and Motion
2. Scientific Method
3. Gravitation

4. Work and Energy
5. Fluids
6. Electricity and Magnetism
7. Wave Motion
8. Chemistry: The Periodic Law
9. The Nucleus
10. Atomic Bonding
11. Mixtures
12. Basic Chemical Reactions
13. Organic
14. Minerals
15. Geological Time
16. Earth and the Earth-Moon System
17. The Solar System
18. Stars
19. The Universe
20. Plate Tectonics
21. Climatic Effects
22. Laboratory Activities
23. Lab Research Activities

**VIII. INSTRUCTIONAL METHODS:**

1. Lecture - Discussion
2. Demonstrations
3. Films, slides and overhead projection
4. Problem solving
5. Hands-on laboratory activities

**IX. INSTRUCTIONAL AND RESOURCE MATERIALS:**

1. Textbook
2. Overhead projector, transparencies and slides
3. Handout information
4. Library
5. Internet, computer animations and software
6. Various Lab equipment
7. Graph Paper

**X. METHODS OF ASSESSMENT:**

SCCC Outcome #1 will be assessed and measured by comprehension of text reading assignments, semester research projects, and participation in class discussion.

SCCC Outcome #2 will be assessed and measured by the student's expression of ideas through class assignments and research projects.

SCCC Outcome #3 will be assessed through class discussions and group presentations of research projects.

SCCC Outcome #4 will be assessed through analyzation of laboratory data and mathematical problems on quizzes and exams.

SCCC Outcome #5 will be assessed through conceptual discussions, laboratory investigations and research projects.

SCCC Outcome #7 will be assessed through class discussion and research projects.

SCCC Outcome #8 will be assessed through a group presentation.

SCCC Outcome #9 will be assessed through attendance, group assignments and presentation.

**XI. ADA STATEMENT:**

Under the Americans with Disabilities Act, Seward County Community College will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Dean of Students at 620-417-1106 or going to the Student Success Center in the Hobble Academic building, room 149 A.

**XII. CORE OUTCOMES PROJECT:**

The learning outcomes and competencies detailed in this course outline or syllabus meet, or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents  
KRSN: PSI1010

Syllabus Reviewed: 5/18/2021