INSTRUCTOR: Charles Carpenter  B.S., M.S.  
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Credit Hours: 4

FOUNDATIONAL AREA OF KNOWLEDGE: PHS 105-7 Principles of Physical Science fulfills the requirement for a Foundational Area of Knowledge in Scientific Perspectives. Any course that fulfills that requirement will assure that students gain a greater understanding of scientific thinking and applications using core ideas in courses that include laboratory or field experience. Students will consider the complexities of scientific methodologies in one or more disciplines of the natural sciences, the scientific context of issues they will confront as informed citizens, and the scientific impact on the global community. Students will work to:

1. Employ methods of science for inquiry in a scientific discipline  
2. Develop their scientific literacy and ability to critically evaluate scientific information  
3. Consider the ethical and social implication of scientific study and use of scientific findings.

PHS 105-7 will seek to accomplish all of these outcomes, with the greatest emphasis on Learning Outcome #1.

REQUIRED TEXT:
ISBN: 0321753348  
ISBN: 0321776569

Other supplemental materials will be supplied by the instructor as required.

COURSE DESCRIPTION:
A survey of topics selected from physics and chemistry designed for the non-science major. Some physics topics to be studied include: the nature of light and color, electrical phenomena, heat and energy, as well as other topics necessary for understanding much of the phenomena associated with everyday life. Chemistry topics include the nature of matter at a macroscopic level and at an atomic level. Social issues with a scientific or technological component are discussed. All topics are developed through laboratory exercises.

LEARNING OUTCOMES: In addition to FAK learning outcomes, learning outcomes specific to this course are that the students will:

1. Determine what is meant by the “degree of laziness” of an object.  
2. Describe what is “really” the difference between mass and weight.
3. Evaluate if an object is in motion whether you have to apply a force to keep it going.
4. Understand what impulse, free fall, and bashing power are.
5. Examine how a person can run over a bed of hot coals, or why an astronaut can float in the space shuttle when gravity is present.
6. Determine how temperature affects hot and cold properties of objects.

**LEARNING STRATEGIES:**
This course will use lecture, video, discussion, activities and lab exercises. Attending classes is imperative, as the activities and lab exercises will be intertwined with discussion and work from the book. Because of the blend of material, missing class will put you at a disadvantage. Being able to work with your partner(s) is a must.

This course will introduce the student to the basic concepts of physical science. The course will be divided into three parts. The student will gain an understanding of motion, forces, and thermal energy. We will have an introductory look at motion, Newton’s Laws, speed, velocity, and acceleration. The study of forces will include what a force is, the kinds of forces, and real world application as to what forces can do. Thermal energy will include the study of methods of heat transfer, differences between temperature and heat, as well as thermal energy.

**ASSESSMENT OF STUDENT PERFORMANCE AND COURSE REQUIREMENTS:**
1. **Class Participation/Attendance (each night of class = 100 pts.).** Your grade for this component is determined by the number of times that you are present in class and your contributions during class work and discussion. If emergencies arise, and you contact the instructor PRIOR to class, that will be factored in to the total points. No notification will result in a loss of 100 points for that night. Late notification will result in a deduction of 25 points for that evening. The only exception would be an extreme medical emergency.
2. **Team Tests (worth 100 points each).** These tests will center around some type of lab exercise. You will work on these tests with a partner.
3. **Individual Tests (worth 100 points each).** These tests will be completed individually, will cover the areas of study, and will be objective in nature.

**COURSE POLICIES:**
1. **Grading Policies--The following grading scale will be used:**
   
   
   
   
   
   90-100 = A  
   80-89 = B  
   70-79 = C  
   60-69 = D  
   BELOW 60 = F

2. **Late papers/assignments--all assignments are due at the time the instructor has scheduled. All work needs to be done by the end of the class eight week session unless other arrangements are made.
3. **Attendance--A portion of your grade will be based on attendance. If you must miss a class, as a matter of courtesy, let the instructor know. See above for further information.
4. **Academic Integrity Policy--**
   *The Doane College Academic Integrity Policy will be adhered to in this class. All projects and tests will represent your own work or the work of the group. Any use of others’ ideas and words without proper citation of sources is plagiarism and will result in penalties to be determined by the instructor and/or the dean of undergraduate studies.*