COURSE INFORMATION FORM

DISCIPLINE  
Physics

COURSE TITLE  
Foundations of Physical Science

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CATALOG DESCRIPTION

Fundamental principles and concepts of classical and modern physics, astronomy, chemistry and earth science, and their relationships.

PREREQUISITES

Math 40 or MATH 40L with a grade of C or better or satisfactory score on the math placement test.

EXPECTED STUDENT OUTCOMES IN THE COURSE

Upon completion of this course, the student will be able to:

1. Demonstrate understanding of scientific method, differentiating between scientific fact and theory.
2. Identify and describe the major fields of physical science and the relationships among them.
3. Estimate orders of magnitude of quantities using the metric system and apply systems of units, including the metric system, correctly in solving problems.
4. Use supporting factual evidence to discuss our physical world and its origins.
5. Draw appropriate conclusions based on numerical and graphical data.
6. Relate course topics to personal experience and societal and environmental issues.

GENERAL EDUCATION OUTCOMES (ESO)

Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

4. Interpret and apply quantitative and/or qualitative information embedded in text, real-life situations, tables, or graphs to analyze complex situations and/or solve quantitative or qualitative problems. (Assessed in 2013)

DISCIPLINE OUTCOMES

Specify which discipline outcomes, if any, are substantially addressed by the course.

1. Analyze physical phenomena by correctly applying relevant conservation laws.
3. Given an experimental scenario, critique the method and results based on accepted scientific methods and principals.
4. Relate course topics to personal experience and societal and environmental issues.
CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes may be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. Quizzes (1 – 6)
2. Examinations (1-6)
3. Assigned homework (1-7)
4. Discussions (1-7)
INDIVIDUAL INSTRUCTORS MAY ORDER THIS OUTLINE AS FITS THE NEEDS OF THEIR INDIVIDUAL COURSES. IN ADDITION, THEY MAY PLACE MORE EMPHASIS ON SOME AREAS THAN ON OTHERS. WHAT IS ASSURED IS THAT THIS PARTICULAR LIST IS COVERED IN THE COURSE. OTHER TOPICS MAY BE ADDED TO A COURSE AS THE INSTRUCTOR SEES FIT, AND AS TIME AND INTEREST ALLOW. AN *ASTERISK CAN BE USED TO MARK AN ITEM AS OPTIONAL.

I. Scientific method
   A. Units of measure
   B. Systems of measure

II. Physics
   A. Kinematics
   B. Newton's laws
   C. Energy and conservation laws
   D. Electromagnetism
   E. Modern physics

III. Chemistry
   A. Structure of matter
   B. Chemical properties, processes and reactions
   C. Consumer chemistry

IV. Earth science
   A. Principles of meteorology
   B. Plate tectonics and physical evolution
   C. Physical structure of the earth

V. Astronomy
   A. Planetary systems
   B. Observational astronomy
   C. Stellar astronomy
   D. Cosmology