

Common Course Outline

ARSC 103

Natural Science

3 Semester Hours

The Community College of Baltimore County

Description

Natural Science

Presents a survey of the fundamental principles in physics, chemistry, astronomy, earth sciences and biology; includes origin of the universe, formation of the earth, origin of life, evolution, advances in technology and problems confronting ecosystems.

3 credits: 3 lecture hours per week.

Prerequisites: LVE 2, LVR 2, LVM 2

Overall Course Objectives

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

1. use scientific terminology to describe basic physical, chemical and biological processes (I, 1)
2. describe, numerically and graphically, various presentations of scientific data. (I, 1, 3)
3. incorporate scientific information into effective written and oral communications. (II, 4)
4. apply mathematical methods to the interpretation of scientific data. (III, 3)
5. use scientific data and methods, individually and collaboratively, to solve problems involving scientific topics. (III, VI, 2, 4)
6. use scientific technology to research a scientific topic. (III, VI, 6)
7. explain how scientists have used results from technologies to develop theoretical models. (IV, 5)
8. utilize the Internet and/or other informational resources to research scientific topics. (IV, 6)
9. discuss how physical, chemical and biological processes affect the conditions for biological and social organization on Earth. (IV, V, 7)
10. describe the backgrounds and historical contexts of scientists from a variety of cultures. (V, 7)
11. examine relationships among various scientific disciplines and among various technologies. (IV, 7)
12. discuss ethical issue relating to scientific and technological developments. (V, 7)

Major Topics

This course deals with basic concepts of main scientific disciplines.

Energy

Thermodynamics

Electricity and Magnetism

Electromagnetic Radiation

Matter

Atom
Chemical Bonds
Material Properties
Elementary Particles
Planetary Processes
Geological Changes
Meteorological Cycles
Cosmic Processes
Relativity
Stellar Evolution
Cosmology
Organic Processes
Organic Molecules
Cell
Genetics
Evolution
Ecosystems
Survival Strategies
Ecological Disruption

Course Requirements (VII)

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following:

- a minimum of 4 exams
- a minimum of 4 group activities involving discussion and presentation
- a minimum of 1 written report on an activity involving the collection and analysis of scientific data
- a minimum of 3 other writing assignments, consisting of essays on exams, reports on supplemental reading, research papers, etc.

Other Course Information

This course fulfills a 3-credit General Education requirement in the Biological and Physical Sciences and can serve as a science elective.

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common Course Outline.

Date Revised: 5/31/00
6/06