

Common Course Outline
ARSC 104
Great Perspectives in Science
3 Credits
The Community College of Baltimore County

Description

ARSC 104 – 3 credits – Great Perspectives in Science presents a review of developments in the natural sciences by means of four perspectives: analytical, unifying, evolutionary and quantifying. Topics include atomic theory, vascular circulation, relativity, genetics, plate tectonics and cosmology. Individuals highlighted include Curie, Pasteur, Crick and Watson, Newton, Hubble, Aristotle, Einstein, Mendeleev, Wegener, Darwin, Hawking, Galileo, Mendel, Heisenberg and Faraday.

3 Credits

Prerequisites: (ENGL 052 and RDNG 052) or ACLT 052; and MATH 082

Overall Course Objectives

Upon completion of this course students will be able to:

1. use scientific terminology to describe discoveries and theoretical explanations concerning many fields of science;
2. describe, numerically and graphically, various presentations of scientific data;
3. incorporate scientific information into effective written and oral communications;
4. apply mathematical methods to the interpretation of scientific data;
5. use scientific data and methods, individually and collaboratively, to solve problems involving scientific topics;
6. explain how scientists have used results from technologies to develop theoretical models;
7. find, evaluate, use and cite appropriate academic resources to research scientific topics;
8. discuss how physical and biological processes affect the conditions for biological and social organization on Earth;
9. examine the relationships among advances in a variety of scientific disciplines;
10. compare and contrast the lives and contributions of scientists from diverse cultures over the course of the history of science, and
11. evaluate the ethical relationships of science and technology to larger social, political and economic contexts.

Major Topics

This course deals with the processes of scientific discovery in a wide variety of specific topics.

I. Analytical Perspective

- A. Components of Matter and Energy
- B. Components of Living Things
- C. Components of the Universe

II. Unifying Perspective

- A. Universal Motions
 - B. Universal Forces
 - C. Universal Relationships
 - D. Universality of science and scientific method across diverse cultures
- III. Evolutionary Perspective
- A. Material Processes
 - B. Organic Processes
 - C. Universal Processes
- IV. Quantifying Perspective
- A. Dynamical Approach
 - B. Probabilistic Approach
 - C. Geometrical Approach

Course Requirements:

Grading/Exams:

Grading procedures will be determined by individual faculty members but will include the following:

- a minimum of 4 exams including written short responses
- a minimum of 1 activity requiring student collaboration
- a minimum of 2 written assignments totaling at least 3-5 pages, using MLA format

Writing:

Multiple assignments will infuse CCBC General Education Program objectives. At least one assignment worth a minimum of 10% of the total course grade will allow students to demonstrate at least five of the seven General Education Program outcomes. Students are required to use appropriate academic resources.

Other Course Information

This course is an approved 3-credit General Education course in the Biological and Physical Sciences category that **does not fulfill** the laboratory requirement. Please refer to the current CCBC Catalog for General Education course criteria and outcomes.