Common Course Outline
ERSC 131
Meteorology
4 Credits

Community College of Baltimore County

Description

ERSC 131 – Meteorology is an examination of weather and climate with emphasis on the physical principles underlying the movement and processes occurring in the Earth's atmosphere. Students explore radiation and atmospheric heating, global circulation, weather systems, fronts and air masses, cloud physics, local weather, and other topics in applied and aviation meteorology.

4 Credits: *3 lecture hours; 2 laboratory hours*

Prerequisites: ACLT 052 or ACLT 053 or (ESOL 052 and ESOL 054), and MATH 082

Overall Course Objectives

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

1. discuss how atmospheric processes can impact oceanic processes;
2. analyze and present, numerically and graphically, various meteorological data;
3. incorporate meteorological information into scientifically valid written and oral communications;
4. use meteorological equipment and data (simulated or real);
5. solve problems using meteorological data and scientific methods, individually and collaboratively;
6. apply meteorological information to aviation subjects;
7. explain how results from observational technologies are used to develop theoretical models of the atmosphere;
8. locate, evaluate, use, and cite online or print academically-appropriate resources to research meteorological topics;
9. discuss the roles and benefits that meteorological observations and technologies have had within various cultures;
10. describe conditions that promote various atmospheric conditions and the impacts of human endeavors on the atmosphere and climate;
11. evaluate international treaties covering shared action by many countries to address atmospheric problems, including certain obligations required of citizens in the various nations;
12. discuss professional behavior and decision-making within the scientific community and the impacts from a meteorology perspective; and

13. apply the fundamental principles, concepts, vocabulary, and methods essential for the understanding of knowledge basic to meteorology.

Major Topics

I. The Earth and its Atmosphere
II. Energy Distribution
    A. Seasonal and Daily Temperatures
    B. Heat Transfer
III. Light, Color, and Atmospheric Optics
IV. Atmospheric Moisture
    A. Condensation: Dew, Fog, and Clouds
    B. Stability and Cloud Development
    C. Precipitation
V. The Atmosphere in Motion
    A. Small Scale Wind Systems
    B. Global Wind Systems
VI. Air Masses and Fronts
VII. Weather Phenomena
    A. Thunderstorms
    B. Hurricanes
    C. Tornados, Water Spouts, and Dust Devils
VIII. Weather Forecasting
IX. Global Climate Change Challenges

Course Requirements

Multiple assignments will infuse CCBC General Education Program objectives; at least one assignment worth a minimum 5% of the total course grade will allow students to demonstrate at least 5 of the 7 General Education Program outcomes. Grading procedures will be determined by the individual faculty member but will include a minimum of:

Grading/exams

- Three exams including a comprehensive final exam
- At least five written assignments, including lab reports
- At least one activity requiring student collaboration (may be a lab report)

Written Assignments: Students are required to use appropriate academic resources.

Other Course Information

This course is an approved 4-credit General Education course in the Biological and Physical Sciences category that fulfills the laboratory requirement. Please refer to the current CCBC Catalog for General Education course criteria and outcomes.

Date revised: 01/08/19