

ERSC 131

Introduction to Meteorology

4 Credits (3 lecture hours; 2 lab hours)

Community College of Baltimore County
Common Course Outline

Description

ERSC 131 – Introduction to Meteorology: is a course that examines 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, clouds, local weather, and other topics in applied and aviation meteorology.

Pre-requisites: ACLT 053 or (ESOL 052 or 054) and MATH 082

Co-requisites: ENGL 101

Overall Course Objectives

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

1. apply the fundamental principles, concepts, vocabulary, and methods essential for the understanding of knowledge basic to meteorology;
2. describe conditions that promote various atmospheric conditions;
3. use meteorological equipment and data (simulated or real);
4. analyze meteorological data to draw conclusions about meteorological processes;
5. evaluate weather forecasts from different sources;
6. incorporate meteorological information into scientifically valid communications;
7. solve problems using meteorological data and scientific methods;
8. apply meteorological information to aviation subjects;
9. discuss the impacts of human endeavors on the global atmosphere and climate;
10. describe the impacts of atmospheric conditions on various cultures;
11. evaluate international treaties covering shared action by many countries to address atmospheric problems;
12. find, evaluate, use, and cite academically-appropriate resources to research meteorological topics; and
13. discuss professional behavior and decision-making within the scientific community and the impacts from a meteorology perspective.

Major Topics

- I. The Earth and its Atmosphere
- II. Energy Distribution
 - a. Seasonal and Daily Temperatures
 - b. Heat Transfer
- III. Light and Color
- IV. Atmospheric Moisture

The Common Course Outline (CCO) determines the essential nature of each course.

For more information, see your professor's syllabus.

- a. Condensation
- 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. Tornados
 - c. Hurricanes
- VIII. Weather Forecasting
- IX. Global Climate Change

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- three exams including a cumulative final exam
- seven laboratory assignments
- two written assignments
- four quizzes

Written assignments and research projects: Students are required to use appropriate academic resources in their research and cite sources according to the style selected by their professor.

Other Course Information

This course is an approved 3–credit General Education course in the Biological and Physical Sciences and fulfills the laboratory requirement.

One or more assignments will infuse CCBC General Education Program outcomes and will account for a minimum of 10% of the total course grade. The assignment(s) will allow students to demonstrate at least 5 of the 7 General Education program outcomes.

Date Revised: 10/18/2022