



Governing Iowa's Public Universities

In accordance with [Board of Regents policy 3.20](#), the following required information is available below:

Fall 2026

I. Course title and number as designated in the institutional course catalog

EARTHSCI 1210 Elements of Weather Laboratory, 60

II. A course description including learning objectives that students are expected to achieve by the end of the course

A. Course Description:

EARTHSCI 1210. Elements of Weather Laboratory — 1 hr.
Fundamentals of meteorological observation, use of basic meteorological instruments, and applications of maps and charts to understanding forecasts. Student Learning Outcomes include Critical Thinking and Scientific Reasoning. Lab, 2 periods. Prerequisite(s) or corequisite(s): EARTHSCI 1200. (Fall, Spring, Summer)

B. Course Level Learning Objectives:

Understand the vertical thermal structure of the atmosphere
Construct and interpret an isothermal map
Describe the annual cycle of air temperature
Describe the differences between dew point temperature and relative humidity
Identify types of clouds
Describe the differences between wintry precipitation types
List and describe the forces that act on the atmosphere to produce or modify winds
Identifying fronts
Interpret a weather map
Describe basics methods used to produce a weather forecast

III. A general outline of the topics to be covered throughout the course:

1. Introduction to the Atmosphere
2. Heating Earth's Surface and Atmosphere



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3. Temperature
4. Moisture and Atmospheric Stability
5. Forms of Condensation and Precipitation
6. Air Pressure and Winds
7. Circulation of the Atmosphere
8. Air Masses
9. Midlatitude Cyclones
10. Thunderstorms and Tornadoes
11. Hurricanes
12. Weather Analysis and Forecasting
13. Air Pollution
14. Optical Phenomena of the Atmosphere

IV. List of required textbooks, readings, and other materials necessary for the course

The Atmosphere: An Introduction to Meteorology, Frederick Lutgens and Edward Tarbuck, 14th Edition, Pearson. 978-0134758589

V. General description of the types of assessments used in the course (e.g., exams, papers, projects, experiential learning):

Reading, In-class practice, Discussions, 10 Lab Assignments