ROCHESTER COMMUNITY AND TECHNICAL COLLEGE

COMMON COURSE OUTLINE

Course discipline/number/title: ESCI 1155: Meteorology Lab

A. CATALOG DESCRIPTION

1. **Credits: 1**
2. **Hours/Week: 2**
3. **Prerequisites (Course discipline/number):** None
4. **Other requirements:** None
5. **MnTC Goals (if any):** Goal 3/Natural Sciences, Goal 10/People and the Environment

B. COURSE DESCRIPTION: In this introductory meteorology laboratory, students construct and interpret graphs, analyze weather maps, and also gather, record, and interpret weather data. Concepts covered include structure of the atmosphere, solar and terrestrial radiation, stability of the atmosphere, atmospheric motion, severe storms, and weather map analysis. ESCI 1154 is recommended as a corequisite.

C. DATE LAST REVISED (Month, year): February, 2025

D. OUTLINE OF MAJOR CONTENT AREAS:

1. Atmospheric moisture
2. Atmospheric motion
3. Climatic controls
4. Climatic variability
5. Cloud droplets and raindrops
6. Hurricanes
7. Mid-Latitude cyclones
8. Saturation and atmospheric stability
9. Solar and terrestrial radiation
10. Thunderstorms and tornadoes
11. Vertical structure of the atmosphere
12. Weather map analysis

E. LEARNING OUTCOMES (GENERAL): The student will be able to:

1. Analyze and interpret meteorological data.
2. Apply meteorological data to real world situations.

F. LEARNING OUTCOMES (MNTC):

Goal 3/Natural Sciences: The student will be able to:

1. Demonstrate understanding of scientific theories.
2. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
3. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.
4. Communicate their experimental findings, analyses, and interpretations both orally and in writing

Goal 10/People and the Environment: The student will be able to:

1. Explain the basic structure and function of various natural ecosystems and of human adaptive strategies within those systems.
2. Discern patterns and interrelationships of bio-physical and socio-cultural systems.
3. Articulate and defend the actions they would take on various environmental issues.
4. Propose and assess alternative solutions to environmental problems.

G. METHODS FOR EVALUATION OF STUDENT LEARNING: Methods may include but are not limited to:

1. Lab Exercises
2. Exams

G. METHODS FOR EVALUATION OF STUDENT LEARNING: Methods may include but are not limited to:
Continued. . .

3. Homework

H. RCTC CORE OUTCOME(S). This course contributes to meeting the following RCTC Core Outcomes(s):
Critical Thinking. Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.

I. SPECIAL INFORMATION (if any):
Included in the initial lab session is a discussion on general safety hazards and safety equipment. During the pre-lab instruction of labs involving hazardous materials or equipment, students are given information pertaining to the use, safety precautions, and disposal of these materials or equipment. The instructor directs all students to wear the necessary protective equipment while working with any hazardous chemicals. Safety Data Sheets for chemicals used are available online.