

Course discipline/number/title: ESCI 1154: Introduction to Meteorology

A. CATALOG DESCRIPTION

1. Credits: 3
2. Hours/Week: 3 Lecture
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: This course will introduce students to our atmosphere and how variables in the atmosphere affect our daily and seasonal weather patterns. Students will gain an understanding of how weather occurs and how the atmosphere affects us individually and as a society. Other topics include tornadoes, hurricanes, air pollution and climate change. This course contains a lab-like component.

C. DATE LAST REVISED (Month, year): February, 2019

D. OUTLINE OF MAJOR CONTENT AREAS:

1. Measuring Weather Variables
2. The Atmosphere: composition and structure
3. Basics of Weather Generation
4. Severe Weather
5. Climate Change
6. Air Pollution

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

1. Apply the scientific method to make accurate short-term weather forecasts.
2. Demonstrate a correct understanding of the mechanism of atmospheric heating.
3. Accurately and precisely measure weather variables
4. Explain the formation, development and dissipation of various types of weather, both severe and ordinary.
5. Assess the effects of severe weather on people, cities and the environment.
6. Critique various models of climate change.
7. Assess the effects of air pollution on humanity and propose methods of mitigation.

F. LEARNING OUTCOMES (MNTC):

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

1. Demonstrate understanding of scientific theories.
2. Communicate their experimental findings, analyses, and interpretations both orally and in writing.
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.

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

1. Discern patterns and interrelationships of bio-physical and socio-cultural systems.
2. Evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems and institutions.
3. Propose and assess alternative solutions to environmental problems.
4. Articulate and defend the actions they would take on various environmental issues.

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

1. Exams
2. Writing assignments
3. Homework assignments
4. Quizzes

- 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): None