

Course Syllabus

Department: Science/Technology

Date: February 19, 2013

I. Course Prefix and Number: SCI 171

Course Name: Introduction to Meteorology

Credit Hours and Contact Hours: 3 Credit Hours, 3 Contact Hours

Meteorology is the study of the air around us, the processes that cause weather and the interaction of the atmosphere with the Earth's surface, ocean and life. This course explores the variables that are the driving force behind weather and climate.

Relationship to Academic Programs and Curriculum including SUNY Gen Ed designation if applicable:

This course is a college level course that fulfills elective mathematics/science course requirements for all A.A., A.S., and A.A.S. degree programs. Each student should verify the appropriateness of this course for his/her program with his/her advisor.

II. Course Student Learning Outcomes:

Upon completion of this course, the successful student must be able to:

- Describe the earth's atmosphere in terms of its parts, components and properties.
- Describe how solar energy is the driving force behind the weather.
- Describe how our atmosphere is heated and the factors that control its temperature.
- Describe the properties of water and how these affect the atmosphere and our weather.
- Analyze the hydrological cycle.
- Describe and measure atmospheric humidity.
- Describe and measure dew point temperature.
- Describe various kinds of precipitation and the conditions necessary for their formation.
- Describe the cause of wind and its effects on the atmosphere.
- Describe the general circulation patterns of the atmosphere and their influence on weather in the Finger Lakes region and the U.S.
- Identify the properties and source regions of major air masses and their influence on weather in the Finger Lakes region and the U.S.
- Identify the properties of, and differences between, high and low pressure systems.
- Describe the formation of the various kinds of fronts and the weather conditions associated with them.
- Explore and understand severe weather events like tornadoes and hurricanes.
- Describe the role geography plays in the world's weather and climate.
- Identify and describe the major climates of the world.
- Identify the nature and causes of climate change and the impacts of these changes.
- Identify cycles that may be at work to cause long-term changes in the climate system (Milankovitch Cycles).

College Learning Outcomes Addressed by the Course: *(check each College Learning Outcome addressed by the Student Learning Outcomes)*

- | | |
|---|--|
| <input type="checkbox"/> writing | <input type="checkbox"/> computer literacy |
| X <input checked="" type="checkbox"/> oral communications | <input type="checkbox"/> ethics/values |
| <input type="checkbox"/> reading | <input type="checkbox"/> citizenship |
| <input type="checkbox"/> mathematics | <input type="checkbox"/> global concerns |
| X <input checked="" type="checkbox"/> critical thinking | <input type="checkbox"/> information resources |

III. Assessment Measures (Summarize how the college and student learning outcomes will be assessed):

List identified College Learning Outcomes(s)	Specific assessment measure(s)
Critical Thinking	Students will use the knowledge gained from this course to make weather predictions.
Oral communications	Reports will be given to the class. For example a mock TV show.

IV. Instructional Materials and Methods

Types of Course Materials:

- Textbook: Selected by department.
- Scientific Calculator: Specified by instructor.
- Supplementary material: Specified by instructor.

Methods of Instruction (e.g. Lecture, Lab, Seminar ...):

Lecture, discussion, group activities, online resources, AV materials, in-class labs, and readings.

V. General Outline of Topics Covered:

Meteorology is the study of the air around us, the processes that cause weather and climate, and the interaction of the atmosphere with the Earth's surface, ocean and life.

This course explores the "anatomy" of air, solar energy as the driving force behind the weather, atmospheric variables (like air pressure, air temperature, relative humidity, dew point temperature, wind speed and direction, wind chill) and the instruments used to measure them, heating the atmosphere via the sun-earth connection, air quality problems (like acid rain, ozone depletion, enhanced greenhouse effect), cloud formation, the different forms of precipitation and how they come about, atmospheric circulation, air masses and fronts, mid-latitude cyclones, lightning, thunder, severe weather (tornadoes and hurricanes), earth's climate and climate change.

