

Bemidji State University

GEOG 3125: Weather and Climate

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: *.*

Lab Hours/Week: *.*

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

Weather is the study of the atmosphere over short time scales, while climate is the study of long-term weather trends. The study of weather is commonly termed meteorology, which is actually a branch of physics associated with fluid dynamics. Climate is associated with statistical procedures and analyses. This course examines the geographic patterns and processes of global climate and weather, as well as topics such as global climate change, global climate models, and extreme weather events. Students learn about the Earth's atmosphere; energy budgets and astronomical controls on weather processes; oceanic and atmospheric circulation; the basic atmospheric parameters; atmospheric hazards such as tornadoes, hurricanes, hail, and lightning; and global climate change issues. Prerequisite: GEOG 2100 or consent of instructor.

B. COURSE EFFECTIVE DATES: 08/24/2014 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Understand the composition and structure of the atmosphere.
2. Understand solar radiation, the seasons, energy balances, and implications for temperature.
3. Describe atmospheric pressure and what is responsible for wind.
4. Understand atmospheric moisture and precipitation processes.
5. Understand what drives atmospheric circulation.
6. Describe the difference air masses affecting US weather.
7. Symbolize and understand weather phenomena such as fronts and mid-latitude cyclones.
8. Demonstrate familiarity with atmospheric hazards such as hurricanes, tornadoes, lightning, hail, and thunderstorms.
9. Relate basic techniques for forecasting the weather.
10. Understand the impact of humans on the atmosphere through issues such as air pollution and urban heat islands.
11. Demonstrate an understanding of Earth's climate.
12. Develop comprehension of global climate change and its myriad environmental ramifications.

D. LEARNING OUTCOMES (General)

1. Demonstrate a general knowledge of Earth's atmosphere.
2. Develop an understanding for global climate change and implications for regional weather patterns.
3. Develop a broad geographic and weather and climate specific vocabulary usable in other courses of study
4. Demonstrate an understanding of Earth/Sun geometry, energy budgets, and resultant influences on weather.
5. Understand the basic characteristics of the atmosphere, including primary parameters, atmospheric and oceanic circulation related to weather, how precipitation is generated, and location-dependent controls on weather.
6. Articulate familiarity with atmospheric hazards, such as tornadoes, hurricanes, hail, lightning and hail.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted