

**Common Course Outline for:** GEOG 1172 – Introductory Meteorology**A. Course Description**

1. Number of credits: 4
2. Lecture hours per week: 3  
Lab hours per week: 2
3. Prerequisites: None
4. Co-requisites: None
5. MnTC Goals: Goal 3 - Natural Science and Goal 10 – People and the Environment

An examination of atmospheric structure and processes, including temperature patterns, heating and cooling of the earth, moisture and humidity, winds, weather map interpretation, and the role of humans in atmospheric modification. Laboratory assignments provide applications of these concepts.

**B. Date last revised:** September 2016**C. Outline of Major Content Areas**

- a. Energy and the basic structure and composition of the atmosphere
- b. Theoretical investigations of atmospheric processes
- c. Observed precipitation processes
- d. Variable saturation vapor pressures
- e. Predictions/Forecasting
- f. Statistical classification of weather-related data
- g. Understanding geographical patterns
- h. Influence of human activity on atmospheric structure and processes
- i. Interaction of atmospheric and socio-economic systems
- j. Air pollution
- k. Global warming
- l. Weather modification
- m. Political initiatives

**D. Course Learning Outcomes**

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

1. Explain the relationships among meteorologic processes and variables (i.e. heat energy, humidity, and barometric pressure) as they apply to the atmosphere and formation of weather. (3a, b, c, d, 10a)
2. Relate past and present changes in the composition and structure of the atmosphere to contemporary discussions of public policy. (3b, d, 10a, c)
3. Apply direct scientific measurement and analysis to the interpretation of air masses and fronts. (3 a, b, c)

4. Understand the role of weather maps for use in weather forecasting. (3c, 10b)
5. Test rudimentary weather forecasts made using weather maps, against actual atmospheric conditions. (3b, c, 10a, b)
6. Explain the causes and effects of hazardous weather, and what precautions can be taken to minimize the costs associated with those hazards. (3a, b, d, 10a, e, f)
7. Explain using scientific data the causes and possible solutions to a variety of air pollution problems including human induced atmospheric modification. (3c, d, 10d, e, f)
8. Understand the statistical and ecological bases behind various climate typologies. (3a, b, 10a, b)

**E. Methods for Assessing Student Learning**

Instructors may use any or all of the following, but are not limited to:

- a. Minimum of two fifty minute exams
- b. Weekly written lab reports
- c. Any other additional work assigned

**F. Special Information**

- a. Students should consult their course syllabus for specific grading policies.