

**METRO 10L Course Outline as of Summer 2021****CATALOG INFORMATION**

Dept and Nbr: METRO 10L Title: WEATHER AND CLIMATE LAB  
 Full Title: Weather and Climate Lab  
 Last Reviewed: 9/24/2018

Units	Course Hours per Week	Nbr of Weeks	Course Hours Total
Maximum 1.00	Lecture Scheduled	0 17.5	Lecture Scheduled 0
Minimum 1.00	Lab Scheduled	3.00 6	Lab Scheduled 52.50
	Contact DHR	0	Contact DHR 0
	Contact Total	3.00	Contact Total 52.50
	Non-contact DHR	0	Non-contact DHR 0

Total Out of Class Hours: 0.00

Total Student Learning Hours: 52.50

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As: GEOG 10L

Formerly:

**Catalog Description:**

Hands-on lab activities exploring weather and climate phenomena. This class is the lab component for Introduction to Weather and Climate (METRO 10). Emphasis is placed on analysis and interpretation of weather reports, forecasts, surface weather maps, upper level air charts, satellite and radar imagery, and other remotely sensed data. Climate classification and climate data will also be included.

**Prerequisites/Corequisites:**

Course Completion or Current Enrollment in MTER 10 ( or METRO 10)

**Recommended Preparation:****Limits on Enrollment:****Schedule of Classes Information:**

Description: Hands-on lab activities exploring weather and climate phenomena. This class is the lab component for Introduction to Weather and Climate (METRO 10). Emphasis is placed on analysis and interpretation of weather reports, forecasts, surface weather maps, upper level air charts, satellite and radar imagery, and other remotely sensed data. Climate classification and

climate data will also be included. (Grade or P/NP)

Prerequisites/Corequisites: Course Completion or Current Enrollment in MTER 10 ( or METRO 10)

Recommended:

Limits on Enrollment:

Transfer Credit: CSU;UC.

Repeatability: Two Repeats if Grade was D, F, NC, or NP

### **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:
	B3	Fall 1981	
	Laboratory Activity		

<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
	5C	Fall 1981	
	Fulfills Lab Requirement		

<b>CSU Transfer:</b>	Transferable	Effective:	Fall 1981	Inactive:
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<b>UC Transfer:</b>	Transferable	Effective:	Fall 1981	Inactive:
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**CID:**

**Certificate/Major Applicable:**

Major Applicable Course

### **COURSE CONTENT**

**Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Apply scientific techniques to meteorology and climatology.
2. Locate, analyze and interpret weather data and maps.
3. Compare and contrast weather forecasting methods.
4. Explain how geography affects weather and climate patterns.

**Objectives:**

At the conclusion of this course, the student should be able to:

1. Conduct experiments and analyze data related to temperature, density, humidity, and other weather elements.
2. Examine, construct, and decode station data.
3. Interpret satellite imagery and radar returns.
4. Analyze and decipher weather maps.
5. Differentiate and critique forecasting methods.
6. Describe how geographical features influence weather.
7. Classify and differentiate climates.

**Topics and Scope:**

- I. Geography of North America
  - A. Place names
  - B. Geographical features

## II. Meteorological Data

### A. Weather elements

1. Air temperature
2. Air pressure
3. Air density
4. Wind
5. Humidity
6. Clouds
7. Precipitation
8. Visibility

### B. Measurement scales

### C. Data analysis

## III. Earth-Sun Relationships and Seasonality

## IV. Atmosphere

### A. Composition

### B. Vertical structure

## V. Surface Weather Maps

### A. Station models

### B. Isopleths

### C. Fronts

## VI. Upper Air Charts

## VII. Atmospheric Data Collection

### A. Satellite imagery

### B. Surface radar

### C. Weather balloons

### D. Other remote sensing devices

## VIII. Forecasting

### A. Methods

### B. Accuracy and reliability

### C. Common uses and applications

## IX. Weather Services

### A. Sources

#### 1. National Weather Service and other governmental agencies

#### 2. Private services

### B. Source reliability

## X. Climate

### A. Classification

### B. Climate change

## **Assignment:**

1. Assigned readings (5-20 pages per week)
2. Written assignments (1 - 2)
3. Lab exercises (10-17)
4. Quizzes (5-17)
5. Exams (1-4)

## **Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Written assignments

Writing  
5 - 10%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Lab exercises

Problem solving  
30 - 60%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations  
0 - 0%

**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes, exams

Exams  
30 - 60%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Participation and attendance

Other Category  
0 - 10%

**Representative Textbooks and Materials:**

Weather Studies Investigations Manual. American Meteorological Society. Current edition  
Laboratory Exercises for Elements of Weather. 3rd ed. Stampone, Mary. Kendall/Hunt Publishing Company. 2017  
Exercises for Weather and Climate. 9th ed. Carbone, Greg. Pearson. 2016

Instructor prepared materials