BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

PSC 51 - Weather Lab **1 Unit(s)**

Prerequisite(s): PSC 50 (or concurrent enrollment)
Recommended Prep: NONE

Transfer Status: CSU/UC
51 hours Lab

This course will emphasize the practical concepts of physical science and weather using demonstration and experimentation. Topics include the scientific method, Newton's laws of motion, heat and energy transfer, the gas law, and fluid dynamics. Other experiments will demonstrate weather observation techniques, collection and analysis of atmospheric data, weather map study, cloud identification, interpretation of satellite imagery, and basic forecasting skills. This course includes a field trip to a local forecasting facility.

II. **OBJECTIVES**

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

A. Use the scientific method to investigate and evaluate weather topics and atmospheric issues.
B. Describe and measure the basic weather variables in the atmosphere.
C. Analyze and describe the different types of clouds in the atmosphere.
D. Identify the basic structure and composition of the atmosphere.
E. Evaluate weather observations and maps.
F. Describe basic physical science concepts including Newton's laws of motion, latent and sensible heat transfer, and the gas law.
G. Analyze satellite imagery and computer model charts.
H. Synthesize basic forecasting tools and techniques.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lab

Topics		Hours
1.	Scientific Method and Weather Variables	3.00
2.	Heat and Temperature	3.00
3.	Latent Heat	3.00
4.	Seasons	3.00
5.	Atmospheric Moisture	3.00
6.	Cloud Identification	3.00
7.	Satellite Interpretation	3.00
8.	Stability and the Adiabatic Process	3.00
9.	Gas Law	3.00
10.	Weather Observation and Instrumentation	3.00
11.	METAR	3.00
12.	Weather Map Analysis -Isobars	3.00
13.	Weather Map Analysis - Fronts	3.00

14.	Weather Model of a Mid Latitude Storm	3.00
15.	Meteorology career options	3.00
16.	Forecasting Tools and Techniques	3.00
17.	Forecasting Application	3.00
Total Hours		51.00

IV. **METHODS OF INSTRUCTION**

A. Collaborative Group Work
B. Class Activities
C. Field Trips
D. Demonstrations
E. Laboratory Experiments

V. **METHODS OF EVALUATION**

A. Quizzes
B. Group Participation
C. Written Lab Reports

VI. **EXAMPLES OF ASSIGNMENTS**

A. Reading Assignments
   1. Read about the two main weather satellite pictures used to analyze the atmosphere. You will compare and contrast these satellite pictures in lab.
   2. Read the instructions for drawing isobars on a weather map. Perform the task of drawing isobars on the maps provided.

B. Writing Assignments
   1. In 200 words or less summarize the results of your latent heat experiment with the Lauric acid. Be prepared to take a quiz on the topic of latent heat.
   2. In 100 words or less summarize the three sensible heat transfer methods and give examples of each. Be prepared to perform experiments in lab that test these methods.

C. Out-of-Class Assignments
   1. "Not applicable" for a lab only course.

VII. **RECOMMENDED MATERIALS OF INSTRUCTION**

Textbooks:

A. Reinbold and Lee. Atmospheric Elements: An Introductory Weather Lab Manual. Butte College, Oroville, 2011.

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