San Bernardino Valley College
Curriculum Approved: SP01

I. CATALOG DESCRIPTION

A. Department Information

Division: Science
Department: Geography
Course ID: GEOG 285
Course Title: Honors in Physical Geography Laboratory
Laboratory: 3 hours
Units: 1
Corequisite: GEOG 110 (May be taken previously.)

B. Catalog Description:

An experiential in-depth supplement specifically designed for the above average student. This is an interactive laboratory experience examining the earth's atmosphere and weather, soil and sediments, landforms, vegetation, and rocks. Maps and remotely sensed imagery will be studied and used. Lecture material given in Introduction to Physical Geography (GEOG 110) will be enhanced and research techniques and methodologies explored. Satisfies the Physical Geography Laboratory requirement.

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II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One

III. EXPECTED OUTCOMES FOR STUDENTS

Upon completion of the course, the student should be able to:

A. List the tools of geography.
B. Interpret topographic maps and extrapolate mappable data.
C. Analyze remotely sensed data.
D. Distinguish between the imagery gathered using various wavelengths of energy.
E. Interpret weather maps.
F. Explain past meteorological events.
G. Prognosticate future meteorological events.
H. Formulate and test hypotheses using field-gathered data.
I. Analyze laboratory results derived from field-gathered specimens.
J. Analyze soil maps and explain the implications of the map data in the real world.
K. Identify landforms, vegetation, climates, soils, weathering, and erosion in the field.
L. Explain the origin and subsequent geomorphic history of selected laboratory rock specimens.

IV. CONTENT

A. Tools of Geography
   1. Topographic maps
   2. Remotely sensed imagery
      a. Black and white photos
      b. Stereo nine-by-nines
      c. Infrared imagery
   3. Weather Maps
      a. Constructing station models
      b. Interpreting station models
      c. Drawing systems symbols
      d. Weather prognostication

B. Field and laboratory investigative techniques
   1. Vegetative morphogenetic adaptations
      a. Xerophytes
      b. Hygrophytes
      c. Cold adaptive
   2. Soil sediment analysis
      a. Hypothesis formation
      b. Sediment sampling techniques
      c. Laboratory analysis
         (1) Munseli color correlation
         (2) Sediment texture separation and measurement
      d. Data analysis
      e. Data interpretation
      f. Presentation
         (1) Ternary diagram
            (a) Preparation
            (b) Interpretation
         (2) Comparison and interpretation
      g. Reevaluation of hypothesis
      h. Revised hypothesis formation
   3. Field identification and analysis of geomorphic features and processes
      a. Fluvial
      b. Seismic
      c. Plutonic
   4. Laboratory analysis of hand specimens
      a. Mineral
      b. Rock
      c. Specimens exhibiting endogenic processes
      d. Specimens exhibiting exogenic history

V. METHODS OF INSTRUCTION:

A. Lecture
B. Demonstration experiments
C. Individual experiments
D. Discussion
E. Problem solving
F. Research papers
G. Laboratory work
H. Laboratory reports
I. Field Trip reports

VI. TYPICAL ASSIGNMENTS:

A. Using the information provided in the demonstration laboratory, examine the plants in the Botanic Garden, locate two plants that exhibit adaptations to aridity. Draw them and explain the precise nature of each adaptation.
B. Compare the plotted results of your textural analysis. Account for similarities and disparities in view of the original hypothesis.
C. The low pressure area located at about 48 N latitude and 91 W longitude on the map you have been given is the center of a mid-latitude cyclone. By carefully considering the weather information you have plotted, draw the fronts on the map that are associated with this weather system. Use the appropriate front symbols.
D. From the map you have been given, Chicago is presently experiencing pleasant, clear sky conditi0ons. What should the weather forecast indicate about Chicago's weather later in the evening?

VII. EVALUATION(S):

A. Methods of evaluation

1. Weekly laboratory reports, either written, quantitative, or spatially portrayed
2. Maps and map analysis
3. Field trip reports
4. Laboratory reports dealing with multi-week projects
5. Hand specimen analysis

B. Frequency of evaluation:

1. Weekly reports, maps, or analyses
2. One major project report
3. One field trip report
4. One field report
5. One field analytical problem

VIII. TYPICAL TEXT(S)

See text for Geography 110.
Supplemental materials are prepared by the instructor.

IX. OTHER SUPPLIES REQUIRED OF STUDENTS:

None