San Bernardino Valley College
Curriculum Approved: SP01

I. **CATALOG DESCRIPTION**:

A. Division: Science and Math
Department: Geography
Course ID: GEOG 110
Course Title: Physical Geography
Units: 3
Lecture: 3 hours
Prerequisite: None.

B. Course Description:
Basic physical elements of geography, especially climate, landforms, water, soil, native animal life and natural vegetation, and their relationships and patterns of distribution on a worldwide basis.

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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. Describe the components of the earth system and how they interact.
B. Analyze the ability of the tools of the geographer (maps, sensing devices, etc.) to provide information to address issues in the scope of geography.
B. Discuss and apply the principles of unequal distribution of energy on the earth.
C. Describe and discuss the weather machine.
D. Explain the world's wind, current and moisture patterns.
E. Discuss intelligently the Geographic Trinity.
F. Account for the world pattern of vegetation, soil and climate.
G. Describe the patterns of tectonic and volcanic activity.
H. Discuss gradational processes and their resulting landforms.

IV. CONTENT:

A. Introduction to Geography as the Spatial Science
    1. The earth system
    2. Models and model system
B. The Tools of the Geographer; Maps, Remote Sensing and Geographic Information
    1. The global grid and location
    2. Scale and the representative fraction
    3. Photographs and the computer
C. Earth-Sun Relationships and the Nature of the Atmosphere
    1. The geometry of the earth and the sun
    2. The gases of the atmosphere
    3. The structure of the atmosphere
D. The Nature of Energy, Temperature and the Earth System
    1. The electromagnetic spectrum
    2. Black body physics and the nature of radiant energy
    3. The response of the various levels of the atmosphere to the energy from the sun
    4. The earth as a radiant body
    5. The greenhouse effect
    6. The marine effect and the continental effect

E. The Examination of the Great Atmosphere Circulation Systems, Pressure and Wind
    1. The measurement of barometric pressure
    2. The explanation for variations in pressure from place to place
    3. Land and sea breezes, Santa Anas and monsoons
    4. Geostrophic winds
    5. The great global pressure system
    6. The great global winds system
F. The Earth as the Water Planet, the Hydrologic Cycle, and the Examination of Water
    1. The role of the hydrologic cycle as a unify force in the physical geography of the planet
    2. Evaporation, condensation and precipitation
    3. Convectional rain and precipitation
    4. Orographic rain and the rainshadow effect
    5. Frontal rain and the midlatitudes
G. Understanding the Weather: Air Mass Cyclonic and Storm System Analysis
    1. The nature of air masses
    2. The polar front and the generation of mid latitude cyclones
    3. The warm front and the cold front
    4. The weather of Southern California
    5. Tropical storm systems
H. Climate, Climate Classification and World Environments
    1. Classification system: empirical vs. genetic
    2. The Koppen system
    3. Tropic environments
    4. Arid lands
    5. The humid mid latitudes
    6. The high latitudes
I. The Holy Trinity of Physical Geography: Soil, Natural Vegetation, and Climate
    1. Climate and the distribution of natural vegetation
    2. Climantic climax plant communities and ecological succession
    3. Plant adaptations, subclimax, and ecotonal communities
    4. The basic nature of soil
    5. Evaluative soil characteristics
    6. Zonal soils and climate
    7. Azonal and intrazonal soils
J. The Nature of Earth Structure Including the Examination of Rocks and Minerals
    1. Earth materials: elements, mineral compounds, and rocks
    2. The rock cycle
    3. Intrusive and extrusive rock material; sial and sima
    4. The relationship between the lithosphere and the mantle
K. Tectonic Forces, Plate Tectonics, Endogenic Activity and Extrusive Volcanism
    1. Wegener and plate tectonics
    2. Diastrophism, folding, and faulting
    3. The San Andreas fault system
    4. Plutonism and intrusive volcanic activity
    5. Extrusive volcanic activity
    6. The great volcanos of the world
L. Geomorphology: The Exogenic Shaping of the Surface of the Earth
M. The Weathering of Earth Materials and the Work of Gravity in Landscape Transformation
    1. Physical or mechanical weathering
    2. Chemical weathering
    3. The gravitational transfer of rock material

N. The Work of Running Water and the Landscapes of Fluvial Activity
    1. The hydrologic cycle, infiltration, and runoff
    2. Channel flow, competency, and capacity
    3. Sorting and deposition
    4. Clastic sedimentary rock and landscapes of deposition
    5. Landforms of fluvial activity

O. Arid Land Environments and the Work of Wind
    1. Aridity and the arid lands of the world
    2. Deserts as relict landscapes
    3. Alluvial fans, playas and pediments
    4. Wind as a geomorphic agent in arid lands
    5. Dune forms and landscapes

P. The Pleistocene and the Present: the Work of Ice as a Geomorphic Agent
    1. Climate change and the Pleistocene
    2. Ice as a shaper of the land
    3. Continental glaciation
    4. Mountain glaciers

Q. The Examination of Coastal Landforms and the Role of Waves, Water and Ocean Currents
    1. Waves of oscillation and waves of translation
    2. Shorelines of emergence and submergence
    3. Prograding and retrograding beaches
    4. Longshore currents and sand bar dynamics

V. METHODS OF INSTRUCTION:

A. Lecture
B. Discussion
C. Work Groups
D. Pre-recorded Video
E. Demonstrations
F. Distance Education Delivery

VI. TYPICAL ASSIGNMENTS:

A. After reading Chapter 8 on Air Masses and Atmospheric Disturbances, do homework assignments:
    Example: Identify the air mass that is least important to the weather of the United States.
B. Consult Hammond's World atlas and prepare your map of Africa for the geographic place name test.

VII. EVALUATION:

A. Methods of Evaluation:
    1. Written warm up questions
        Typical warm up questions:
        What is meant by the notion of a "growing season" and how long is it in the tropics?
    2. Mid term Examinations and Final Examinations

    Examinations may include Multiple Choice or True/False Questions and they may include critical thinking components involving problem solving or essay.

        Typical Multiple Choice Question:

            The amount of water vapor in the air compared with the greatest amount
            That it could hold at a given temperature is

                a. Saturated humidity
                b. Specific humidity
                c. Absolute humidity
                d. Relative humidity
                e. Actual water vapor content

Typical problem solving or essay questions:

Describe the distribution of microthermal climates and explain why they occur in the southern hemisphere

B. Frequency of evaluation:
   1. Warm up questions: one or two per week
   2. Mid term examination: 3 per semester
   3. Final examination: once

VIII. TYPICAL TEXT (S):

Gabler, Sager, Wise and Petersen Essentials of Physical Geography, 6th edition, Saunders College Publishing, 1999
Strahler and Strahler, Introducing Physical Geography 2nd edition, Wiley, 1998
DeBalij and Muller, Physical Geography of the Global Environment, 3rd edition, Wiley, 1998
Hammonds Comparative World Atlas, Hammond, 1997

IX. **OTHER SUPPLIES REQUIRED OF STUDENTS:**

none