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Course Outline for GEOG 1L

INTRODUCTION TO PHYSICAL GEOGRAPHY LABORATORY

Effective: Spring 2019

I. CATALOG DESCRIPTION:
GEOG 1L — INTRODUCTION TO PHYSICAL GEOGRAPHY LABORATORY — 1.00 units

This course is designed to provide supplemental exercises in topics covered in physical geography lecture. Lab experience will include map analysis and interpretation, weather prognostication, landform processes and evolution, tectonics, biogeography, and habitat analysis.

1.00 Units Lab

Prerequisite
GEOG 1 - Introduction to Physical Geography
with a minimum grade of C
(May be taken concurrently)

Grading Methods:
Letter Grade

Discipline:
- Geography

	MIN
Lab Hours:	54.00
Total Hours:	54.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering the course a student should be able to:

A. GEOG1
1. Discuss the size, shape, and movements of the Earth in space and their importance to environmental patterns and processes
2. Explain the atmospheric, geomorphological, and biotic processes that shape the Earth's physical enviroments
3. Discuss the global distribution of the world's climate, ecosystems, and physiographic (landform) features by learning the Koppen classification system
4. Examine the earth/sun relationships, seasons, maps, latitude and longtude, and using GIS and GPS technology by applying examples in real world situations
5. Examine weather and climate issues as they pertain to physical geography by using general concepts of weather, climate and corresponding definitions

IV. MEASURABLE OBJECTIVES:

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

A. Identify applications and activities related to the size, shape, and movement of the Earth in space and their importance to environmental patterns and process
B. Identify application and activities related to the atmospheric, geomorphological, and biotic processes that shape the Earth's furface environments.
C. Identify applications and activities related to the global distribution of the world's major climates, ecosystems, and physiographic (landform) features
D. Identify applications and activities related to basic concepts of physical geography in the analysis of real world variations in environmental patterns by having students work on labs dealing with global warming, earthquake prediction and hurricane research.
E. Identify applications and activities related to the scientific method and practical experience using the tools/concepts of physical geography (laboratory component) such as having the students use GPS, meteorology equipment, and topographic maps

V. CONTENT:
A. Distance Concepts
1. Length of a Degree on a Great Circle
2. Proportional Relationship of a Globe to the Earth
3. Verbal, Representative Fraction, Graphic Scales
B. Locational Reference Systems
1. Geographic Grid and Coordinates
2. Metes and Bounds
3. Land Ordinance of 1785 (Township and Range)

4. French Long Lot
5. Land Grants

C. Longitude and Time Relationships
D. Maps
1. Marginal Information, Systems, Legends
2. Relief Representation
3. Scale, Area, Detail Relationships
4. Measurements of Distance and Direction
5. Slope Measurements, Profiles
6. Projections and Their Properties
7. Thematic and Topographic Map Interpretation

E. Remotely-Sensed Imagery (Satellite, Photographic)
1. Platforms and Sensors
2. Physical and Cultural Signatures

F. Geographic Information System Applications (at instructor's discretion)
1. Exploring Tropical Cyclones
a. Recipe for a Cyclone
b. The Live of a Cyclone
c. Hurricane Hazards
d. Hurricanes in the Big Apple
2. Exploring the Dynamic Earth
3. Exploring Water Resources
a. Global Water Resources
b. The Renewable Resource
c. US Water Use
d. A Thirsty Town in the Desert

G. Earth-Sun and Seasonal Relationships
1. Determination of Sun's Declination, Altitude Angle
2. Determination of Duration of Daylight
3. Temporal and Spatial Distribution of Insolation

H. Multiple Applications in Weather Topics
1. Temperature Measures, Distribution, Cycles
2. Atmospheric Pressure/Winds and Oceanic Circulation
3. Atmospheric Moisture and Stability
4. Precipitation Processes/Distribution and Water Budgets
5. Frontal Analysis and Identification of Associated Weather Characteristics on Synoptic Charts

I. Climate Applications
1. Climate Controls
2. Climate Classification and the use of Climographs
3. Computer Simulations/Modeling of Climate Change

J. Soils Applications
1. Soil Properties
2. Classification
3. Soil Survey Map Interpretation

K. Vegetation Applications
1. Plant Identification and Adaptations
2. Classification
3. Climate, Soils, Vegetation Associations

L. Earth Materials
1. Mineral and Rock Classification and Identification
2. Landscape Expression

M. Landform Map/Image Analysis/Interpretation, Exercises, Simulations
1. Types
2. Processes
3. Spatial Distribution and Environments
4. Land Use and Modification
5. Drainage Patterns

VI. METHODS OF INSTRUCTION:
A. Group Presentations (optional)
B. **Lab** - Students will use weather equipment such as psychrometers, weather station data, etc. in their labs
C. **Lab** - Students will work in groups doing experiments on a weekly basis
D. Laboratory Sessions 1. Short Introductory Lectures a. Chalkboard/Whiteboard Presentation b. Overhead Transparencies c. Web Sites
E. Individual and Group Work a. Laboratory Manual b. Topographic Maps c. GIS Investigations Workbook
F. Using GPS and ArcGIS technology for experiments.

VII. TYPICAL ASSIGNMENTS:
A. Students will do weekly assignments in groups pertaining to the geographic concept of that week.
B. The labs can take place either in groups or individually as the instructor warrants.
C. The number and scope of the assignments vary week by week and usually but are not exclusive to the lab manual that comes with the textbook.

VIII. EVALUATION:
Methods/Frequency

A. Projects
to be assigned at the discretion of the instructor
B. Lab Activities
weekly

IX. TYPICAL TEXTS:
1. Hess, D. (2016). *Physical Geography Laboratory Manual* (12th ed.). Upper Saddle River, New Jersey: Pearson Higher Education.
2. Thomsen, C.E., & Christopherson, R.W. (2017). *Applied Physical Geography: GEO-Systems in the Laboratory* (10th ed.). Upper Saddle River, NJ: Pearson Higher Education.
3. Computer and Internet access

X. OTHER MATERIALS REQUIRED OF STUDENTS:

A. Scientific calculator
B. Protractor
C. Straight edge
D. Sharp lead pencils
E. Colored pencils
F. Ruler
G. USGS topographic quadrangles (Livermore, Altamont, home/place of interest)
H. Campus print card