COURSE OUTLINE OF RECORD

Number: GEOG G180L  TITLE: Physical Geography Laboratory

ORIGINATOR: Laszlo Mariahazy  EFF TERM: Fall 2013
FORMERLY KNOWN AS: GEOG G181
DATE OF OUTLINE/REVIEW: 04-02-2013
CROSS LISTED COURSE: TOP NO: 2206.00  CID: GEOG 111

SEMESTER UNITS: 1.0
HRS LEC: 0.0  HRS LAB: 54.0  HRS OTHER: 0.0
CONTACT HRS TOTAL: 54.0
STUDY NON-CONTACT HRS RECOMMENDED: 0.0

CATALOG DESCRIPTION:
This course is designed to provide supplemental, practical laboratory exercises that correlate to topics covered in Physical Geography G180. Lab experience will include map analysis and interpretation, weather prognostication, landform processes and evolution, tectonics, biogeography, and habitat analysis. PREREQUISITE: Geography G180 or concurrent enrollment.

JUSTIFICATION FOR COURSE:
This course is designed to meet the science and lab transfer requirement for students and as a general interest course. It provides students with hands-on experience in geographic mapping and analytical techniques.

PREREQUISITES:
- GEOG G180: Introduction To Geography: Physical Geography GEOG G180L students should be concurrently enrolled in Physical Geography Lecture (GEOG G180) or have completed Physical Geography Lecture, or the equivalent.

COREQUISITES:
- GEOG G180: Introduction To Geography: Physical Geography GEOG G180L students should be concurrently enrolled in Physical Geography Lecture (GEOG G180) or have completed Physical Geography Lecture, or the equivalent.

ADVISORIES:

ASSIGNED DISCIPLINES:
Geography

MATERIAL FEE: Yes [ ] No [X] Amount: $0.00
CREDIT STATUS: Noncredit [ ] Credit - Degree Applicable [X] Credit - Not Degree Applicable [ ]
GRADING POLICY: Pass/No Pass [ ] Standard Letter [X] Not Graded [ ] Satisfactory Progress [ ]
OPEN ENTRY/OPEN EXIT: Yes [ ] No [X]
TRANSFER STATUS: CSU Transferable[ ] UC/CSU Transferable[X] Not Transferable[ ]
BASIC SKILLS STATUS: Yes [ ] No [X] LEVELS BELOW TRANSFER: Not Applicable
CALIFORNIA CLASSIFICATION CODES: Y - Not Applicable
NON CREDIT COURSE CATEGORY: Y - Not applicable, Credit Course

OCCUPATIONAL (SAM) CODE:

REPEATABLE ACCORDING TO STATE GUIDELINES: No [X] Yes [ ] NUMBER REPEATS:
REQUIRED FOR DEGREE OR CERTIFICATE: Yes [X]

**Geography AA-T**

**Geography (Associate in Arts for Transfer)**

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**GE AND TRANSFER REQUIREMENTS MET:**

IGETC Area 5: Physical and Biological Sciences

- 5C: Laboratory Activity

CSU GE Area B: Scientific Inquiry and Quantitative Reasoning

- B3 - Laboratory Sciences

**COURSE LEVEL STUDENT LEARNING OUTCOME(S) Supported by this course:**

1. SLO #1:

   Students will be able to analyze weather patterns and world climates.

2. SLO #2:

   Describe seasonal Earth-Sun relations and explain resulting physical phenomena on Earth’s surface.

3. SLO #3:

   Describe the process of Plate Tectonics and explain its correlation to the creation of landforms.

**COURSE OBJECTIVES:**

1. Find locations using latitude and longitude.
2. Calculate time differences and elapsed time between locations using standard time zones and the International Date Line.
3. Identify, create and utilize fractional, verbal, and graphical map scales.
4. Identify distortions on various map projections.
5. Determine sun angles, seasons, and relationships between the earth and sun.
6. Calculate time of maximum insolation for various locations based on time of year.
7. Identify locations using the Township and Range grid system.
8. Determine elevation or temperature using the normal and adiabatic lapse rates and orographic lifting.
9. Classify clouds and weather associated with each cloud type.
11. Identify major wind, pressure, and ocean circulation systems.
12. Determine current and forecast weather conditions based on a cyclone’s location and direction.
13. Classify point data and map patterns using isolines.
14. Categorize annual rainfall and temperature data by the Koppen climate system.
15. Identify and classify ecosystems and biomes based on various climate regimes.
16. Characterize types of tectonic plate boundaries and landforms.
17. Distinguish among volcano types and locational variables.
18. Calculate rate of plate movement using distance and time.
19. Identify types of faults based on cross-section of rock layers.
20. Classify soils based on percentage of silt, sand, and clay and determine porosity.
21. Analyze topographic contour maps and create topographic profiles.
22. Identify and characterize stream and river types and stages.
23. Characterize regional desert types and features and measure changes.
24. Identify glacier types and glacial landform distributions.
25. Identify coastal landforms and the dynamics of wave erosion and longshore currents.

**COURSE CONTENT:**

**LECTURE CONTENT:**

Lab only course.

**LABORATORY CONTENT:**

A. Geographic Grid
   1. Identify location using latitude and longitude
   2. Axial tilt and important lines of latitude (Tropics, Equator, Circles)
   3. Map Projections
      a. Identify distortions on various projections
      b. Find great circle routes and calculate rhumb lines for navigation

B. Map Scale
   1. Differentiate between large scale and small scale maps
   2. Identify and create fraction, graph, and verbal scales
   3. Calculate the distance between two points using a fraction scale and graph scale

C. Time Zones
   1. Relationship between longitude and standard time zones
   2. Calculate time differences between locations
   3. Calculate elapsed time (account for time in flight)
   4. International Date Line

D. Earth/Sun Relationships
   1. Concepts of parallelism, seasons, direct vs. oblique rays
   2. Conditions during solstice and equinox
   3. Identify time of maximum insolation for various locations

E. Map Investigation and Cartographic Techniques
   1. Using the Township and Range grid system to identify locations
   2. Identify sub-divisions of a section
   3. Drawing isolines to classify spatial point data - isobars
   4. Identification of landform types of interpreting isoline pattern

F. Temperature Variation
   1. Surface albedo - absorption or reflection of incoming solar radiation
   2. Coastal vs. continental differences in temperature - comparison of annual temperature date and analysis
   3. Lapse rate - determine elevation or temperature using the normal lapse rates.

G. Humidity and Precipitation
   1. Calculate relative humidity
   2. Determine dew point temperature
   3. Cloud classification
   4. Adiabatic Heating and Cooling - calculate temperature using wet and dry lapse rates for orographic lifting

H. Global Circulation and Weather Prognostication
   1. Identify major wind, pressure, and ocean circulation systems
   2. Types of front (cold, warm, stationary, occluded)
   3. Determine current and forecast weather, conditions based on a cyclone’s location and direction
   4. Calculate distance from source of lightning using thunder

I. Climate Classification
   1. Analysis of annual rainfall and temperature data to determine Koppen symbols for climate
type
2. Interpreting and constructing climographs

J. Biogeography and Fauna
1. Identify structural adaptations of plants to various climate regimes
2. Overlays of various conditions to determine a habitat area for a given species

K. Tectonics and Diastrophism
1. Identify types of plate boundaries and landforms
2. Calculate rate of plate movement using distance and time
3. Identify types of faults based on cross-sections of rock layers

L. Soils
1. Classify soils based on the percent of silt, and sand and clay
2. Examination of porosity and drainage of various soil types
3. pH testing

M. Landforms - Erosion, Transportation and Deposition
1. Identify river stage of stream course as young, mature, or old
2. Identify sand dune type
3. Identify glaciers and glacial landform (valleys, moraines, cirque, tidewater, mountain)
4. Identify coastal landform features and processes (wave erosion, longshore current deposition)

METHODS OF INSTRUCTION:

A. Lab:
B. Independent Study:

INSTRUCTIONAL TECHNIQUES:

COURSE ASSIGNMENTS:

Reading Assignments
(lab-only course)

Out-of-class Assignments
(Lab-only course)

Writing Assignments
(Lab-only course)

METHODS OF STUDENT EVALUATION:

Midterm Exam
Final Exam
Problem Solving Exercises
Skills Demonstration

Demonstration of Critical Thinking:
Evaluation, interpretation, and analysis of the distribution and relationships within and among natural phenomena of Earth.

Required Writing, Problem Solving, Skills Demonstration:
Individual and group laboratory exercises and experiments of a hands-on, practical nature including demonstration of methodology, techniques and report generation of results.

TEXTS, READINGS, AND RESOURCES:

TextBooks:

**Manuals:**

**Other:**
1. Instructor prepared maps, charts, tables, articles, web links, and other handouts of important information, instructions, or supplemental material necessary for the completion of the exercises.

**LIBRARY:**

Adequate library resources include:

**Comments:**

**Attachments:**

[Attached Files]