Las Positas College
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Course Outline for BIO 70

FIELD BIOLOGY (FORMERLY BIOL 40)

Effective: Fall 2015

I. CATALOG DESCRIPTION:
BIO 70 — FIELD BIOLOGY (FORMERLY BIOL 40) — 3.00 units

California ecosystems and living vertebrates, their behavior, evolution and ecology, and their interactions with humans. Formerly BIOL 40.

2.00 Units Lecture 1.00 Units Lab

Grading Methods:
Letter Grade

Discipline:

	MIN
Lecture Hours:	36.00
Lab Hours:	54.00
Total Hours:	90.00

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

III. PREREQUISITE AND/OR ADVISORY SKILLS:

IV. MEASURABLE OBJECTIVES:

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

A. Identify vertebrate wildlife of the Bay Area;
B. Identify common plants and invertebrates;
C. Identify vertebrate skeletal remains;
D. Relate dentition to ecological niche;
E. Carry out biological field work, using appropriate techniques;
F. Interpret animal behavior;
G. Apply principles of field biology to ecological problems;
H. Identify major California ecosystems;
I. Predict types of wildlife in an area based on season and ecosystem.

V. CONTENT:
Lecture:

A. California topography
    1. Geologic structure
    2. Habitat diversity
B. Ecology
    1. Life zones; a transect of California
    2. Indicator species
    3. Composition of ecosystems
    4. Ecologic succession
    5. Concepts: niches; habitat; ecotone; biome
    6. Ecologic formations
    7. Community structure
    8. Concepts: food chains; energy pyramid; predator-prey relationships; population cycles; competition
C. Behavior
    1. Instinctive behavior
    2. Concepts: fixed action patterns; the IRM
    3. Types of instinctive behavior
    4. Learned behavior
    5. Displays
D. Ornithology
    1. Feather structure; molt; color
    2. Sound communication
    3. Territoriality
    4. Adaptations for flight
    5. Avian reproductive cycles
    6. Migration

E. Amphibians
    1. Classification
    2. Survey of native species
    3. Coloration: visibility and concealment
F. Reptiles
    1. Classification
    2. Survey of native species
    3. Sense perception in reptiles
    4. Body temperature and thermal regulation
G. Mammals
    1. Evolutionary history
    2. Classification; California species
    3. Adaptive radiation of teeth of mammals
    4. Adaptive radiation of locomotion
    5. Mammalian diets
H. Vertebrate distribution
    1. Faunal regions
    2. Endemism
    3. Disposal and Barriers
    4. Island Faunas
I. Vertebrate Speciation

Laboratory:

A. Bird identification; feather and wing structure
B. Skull identification; variation in dentition
C. Reptile and Amphibian identification
D. Assembling and writing a field notebook

VI. METHODS OF INSTRUCTION:
A. **Discussion** -
B. **Lecture** -
C. **Lab** -
D. **Field Trips** -

VII. TYPICAL ASSIGNMENTS:

A. Field Reports B. Population study of small mammals C. Secondary succession in selected areas

VIII. EVALUATION:
A. **Methods**

1. Exams/Tests
2. Quizzes
3. Papers
4. Lab Activities
5. Other:
    a. Methods
        1. Midterm, quizzes and final examination
        2. Laboratory practical
        3. Field notebook

B. **Frequency**

1. Frequency
    a. Midterms 3 per semester
    b. Quizzes weekly
    c. Final exam once per semester
    d. Laboratory Practicals twice per semester
    e. Field notebooks twice per semester
2. Example questions and problems
    a. Inspect the specimens on display and for each one do the following:
        1. State its common name
        2. State its most common habitats
        3. State its common food sources and predators (if any)
    b. In an ecosystem, a “community” is…
        1. All the populations in a region
        2. All non-plants in the ecosystem
        3. All individuals of one species in the ecosystem
        4. The highest level of the food chain
        5. The lowest level of the nutrient cycle
    c. You are a docent leading a group of non-naturalists through a salt marsh in the East San Francisco Bay. It is May.
        1. Name three bird and three mammal species that your group is likely to encounter.
        2. Your group observes a snowy egret walking slowly in circles on a mud flat. Explain this behavior to your group.
    d. Inspect the scatological remains on the front desk. From the specimen, describe the vertebrate (including details of its ecological niche) that produced it in as much detail as you are able.

IX. TYPICAL TEXTS:
1. Stebbins, R.C *California Reptiles and Amphibians.*, Press Publishers, 2000.
2. Peterson, R.T *Field Guide to Western Birds.*, Houghton - Mifflin Publishers, 2001.
3. Jameson, E.W., and H.J. Peeters *California Mammals.*, U.C. Press Publishers, 2000.

X. OTHER MATERIALS REQUIRED OF STUDENTS: