PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

X Transfer Course ___X A.A. Degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: BOT 110, Botany of Spring Wildflowers

UNIT VALUE: 4

MINIMUM NUMBER OF SEMESTER HOURS: 96

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills

ENTRANCE REQUIREMENTS: None

PREREQUISITE:

COREQUISITE:

RECOMMENDED PREPARATION:

SCOPE OF COURSE:

The identification, distribution, and interrelationships of plants in their natural environment, ecological principles, and representative plant communities. Special emphasis will be given to the study of plant families and the use of taxonomic keys. CSU; UC

SPECIFIC COURSE OBJECTIVES:

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

1. Recognize and identify the common flowering plants (including weeds, trees and shrubs) of our local mountains, desert, coastal marshlands, and vacant fields;
2. Become proficient in using a dichotomous key to identify vascular plants;
3. Compare and contrast the basic types of stems, leaves, flowers, and fruits;
4. Apply the basic techniques of vegetational analysis.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

I. Introduction
- A. Required Textbooks and References
- B. Course Objectives
- C. Herbarium Methods- Collecting, Pressing and Mounting Plants
- D. Specimen Identification Labels and Field Notes
- E. Native vs. Naturalized Plants

II. How To Use A FLORA OF SAN DIEGO COUNTY by R. M. Beauchamp
- A. Major Subdivisions of Vascular Plants
- B. Binomial System of Nomenclature
- C. Citation of Authors' Names (Parenthetical Authorities)
- D. Pronunciation of Scientific Names (Long and Short Accents)
- E. Use of Indented Dichotomous Key
- F. Computer Database Programs for Extensive Plant Collections

III. Plant Taxonomy Terminology
- A. Basic Vegetative Morphology
  - 1.) Subterranean Parts Including Roots, Rhizomes, Corms, etc.
  - 2.) Leaf Types, Shapes, Margins, Phyllotaxy, etc.
- B. Floral Structure and Modifications
  - 1.) Generalized Bisexual Floral Diagram
  - 2.) Unisexual Flowers- Monoecious vs. Dioecious
  - 3.) Monocot vs. Dicot Flowers
  - 4.) Inflorescence Types
  - 5.) Ovary Position and Placentation
- C. Fruit Terminology and Classification
  - 1.) Simple Fruits vs. Multiple and Aggregate Fruits
  - 2.) Dehiscence vs. Indehiscence
  - 3.) Seed Dispersal Mechanisms
- D. Generalized Angiosperm Life Cycle
- E. Basic Characteristics of Conifers and Pteridophytes

IV. Plant Ecology and Vegetation Analysis
- A. Major Vegetation Types (Biomes) In World
- B. California Plant Communities and Altitudinal Life Zones
- C. Quantitative Vegetation Sampling
- D. Writing Scientific Papers

V. Taxonomy of Grasses, Sedges, and Rushes

VI. Phylogeny of Flowering Plants
- A. General Trends in Angiosperm Evolution
- B. Cladistic Analysis of Angiosperms Families
- C. Comparative Biochemistry of Angiosperm Families
- D. Poisonous Flowering Plants
  - 1.) Lectins, Alkaloids, Glucosides, and Phenolic Compounds
  - 2.) Primary Plant Irritants vs. Allergic Contact Dermatitis
- E. Floral Diagrams of Representative Plant Families

VII. Pollination Adaptations
- A. Insect, Wind, and Water Pollution
- B. Significance of Floral Color, Scent, and Nectaries
- C. Miscellaneous Insect Adaptations-Insect Galls and Jumping Bean Moth
- D. Insect-Flower Relationships
  - 1.) Fig and Fig Wasp
  - 2.) Yucca and Yucca Moth
  - 3.) Aristolochia Flower
  - 4.) Salvia Flower
  - 5.) Orchid/Hymenopteran Seduction
  - 6.) Arum Blossoms (Araceae)
  - 7.) Nocturnal Tropical Blossoms
  - 8.) Gardenia Thunbergia Blossom
  - 9.) Marine Angiosperms

10.) Datura and Hawkmoth
11.) Duckweed Pollination
12.) Milkweed Pollination
13.) Aristolochia Glower
14.) Heterostyly
15.) Protogyny and Protandry
16.) Dioecism

VIII. Parasitic, Saprophytic, and Mycotrophic Wildflowers

REQUIRED READING:

Beauchamp, R. M. A Flora of San Diego County. National City, CA: Sweetwater River Press, 1986.

Supplemental published articles handed out in class by the instructor.

Armstrong, W.P. Wayne's Word: A Newsletter of Natural History Trivia. http://waynesword.palomar.edu, 2002.

SUGGESTED READING:

Harrington, H. D. & L. W. Durrell. How to Identify Plants. Chicago: The Swallow Press, 1957.

REQUIRED WRITING:
Each lecture exam includes several essay questions with each answer requiring one-half to one full page of writing. Other writing assignments may include short essays on specific topics, journal article reviews, and/or a five-page term paper on local plant communities written in scientific format. These assignments will total a minimum of ten pages of writing.

OUTSIDE ASSIGNMENTS:

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short-term classes.

Class preparation may include such activities as assigned reading in text and review of lecture material. Students will be required to assemble a plant collection of twenty-five plants, properly pressed, identified, and labeled according to the current rule of botanical nomenclature. Students will also be required to complete a five-page term paper on local plant communities.

INSTRUCTIONAL METHODOLOGY:
Check all that apply:
__X__ lecture
__X__ laboratory
_____ lecture-laboratory combination
_____ directed study

DISTANCE LEARNING:

This course may be offered as a distance learning course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.
Yes ____ No X

If yes, check all that apply:

_____ Television Course (Video one-way, e.g. ITV, video cassette, etc.)
_____ Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
_____ Two-Way Video Conferencing (Two-way interactive video and audio)
_____ One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
_____ Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):
Final grade is based on total points accumulated during the semester. A minimum of three objective/subjective exams (multiple choice and essay), a comprehensive final, at least 12 keying-out quizzes involving one or more wildflowers or grasses, and several terminology quizzes on plant families and plant communities make up 50% of the course grade. A plant collection of 25 plants properly pressed, identified, and labeled makes up 25% of the course grade, and a five page term paper on local plant communities makes up the final 25% of the course grade.

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?
Yes ____ No X Number of times course may be taken for credit: 1

If yes, identify specific provision of Title 5 Division 2 section(s), 55761-55763 and 58161 which qualifies course as repeatable:

CONTACT PERSON: Wayne P. Armstrong x2524

SIGNATURES ON FILE