

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

Transfer course A.A. degree applicable course

(check all that apply)

COURSE NUMBER AND TITLE: Botany 115 - Plants and People

UNIT VALUE: 3 **MINIMUM NUMBER OF SEMESTER HOURS:** 48

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS: **None**

PREREQUISITE: **None**

COREQUISITE: **None**

RECOMMENDED PREPARATION:

SCOPE OF COURSE:

The role of plants in the world ecosystem, including past and present cultural and economic uses for food, medicine, and industrial products. Principles of plant structure and function, with selected topics on plant diversity, plant adaptations, and the interrelationships between plants and people will also be discussed.

SPECIFIC COURSE OBJECTIVES:

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

1. Discuss the relative topics of humanistic botany;
2. Compare and contrast the vital role of plants in the world ecosystem;
3. Discuss the role and usefulness of plants in their daily lives;
4. Compare and contrast the naming and classification of plants;
5. Discuss the poisonous, drug, and medicinal plants; and,
6. Compare and contrast the economically important plants through cultural and commercial discussions.

- C. Bryophytes
 - D. Pteridophytes
 - E. Spermatophytes (seed plants)
 - F. Miscellaneous topics: largest seeds and fruits, largest seed cones, largest and smallest flowering plants, largest and smallest individual flowers, tallest tree, most massive tree, oldest living things, etc.
- VI. Poisonous, Drug, and Medicinal Plants
- A. Doctrine of signatures
 - B. Historical and modern drug plants
 - C. Identification of poisonous mushrooms
 - D. Plants causing dermatitis and allergic reactions
 - E. Narcotics and hallucinogens
 - F. Marijuana controversy
 - G. Field identification of dangerously poisonous plants in S.D. County
 - H. Lectins, mitogens and spindle poisons
- VII. Economically Important Plants (Commercially and Culturally)
- A. Fruits and nuts
 - B. Vegetables
 - C. Grains (cereals)
 - D. The origin of corn: teosinte and pod corn hypotheses
 - E. Spices
 - F. Beverages--including fermented juices
 - G. Products from wood--including lumber, distillation products, rubber, paper, etc.
 - H. Tannins, dyes, perfumes and textiles
 - I. Miscellaneous plant products
 - J. Economically important plant families on the Palomar College campus
 - K. Horticultural and aesthetic value of plants
 - L. Interesting uses of plants by southwest Indian tribes
- VIII. Heredity and Hybridization in Plants
- A. Gregor Mendel
 - B. Natural and cultivated hybrids
 - C. Mitosis and polyploidy
 - D. Meiosis and fertility of polyploids
 - E. Selective plant breeding
 - F. The discovery of perennial teosinte and its implications for future corn production
 - G. Why seedling fruit trees are generally unproductive
- IX. Evolution and Adaptations of Plants
- A. Evolution controversy
 - B. Charles Darwin and Alfred Wallace
 - C. Evidence for evolution (paleobotany)

- D. Convergent vs. parallel evolution
 - E. "Missing links"
 - F. Isolation and disjunct distributions
 - G. Seed dispersal mechanisms
 - H. Pollination adaptations - insect-flower relationships
 - I. Insectivorous plants
 - J. Parasitic flowering plants
 - K. Xerophytic and hydrophytic adaptations
- X. Introduction to Plant Ecology
- A. Major biomes of North America
 - B. Life zones and plant communities
 - C. Native vs. naturalized plants
 - D. Sampling plant populations--dominance, density and frequency
 - E. Xerarch and hydrarch succession
 - F. Shade intolerant (pioneer) and shade tolerant (climax) species
 - G. Retrogression
 - H. Fire ecology--post burn succession and plant adaptations
 - I. Food webs, ecosystems, and nutrient cycles
 - J. Nitrogen fixation
 - K. Detrimental effects of humans upon the biosphere
 - L. Organically grown vs. natural foods
 - M. The green revolution

REQUIRED READING:

Simpson, Beryl B. and Molly Conner-Ogorzaly. Economic Botany - Plants In Our World. New York: McGraw-Hill Publishing Company, 1986.

Selected published articles on botanical subjects provided and authored by the instructor.

SUGGESTED READING:

Lewis, W.H. & M. P. Elvin-Lewis. Medical Botany. New Jersey: John Wiley & Sons, 1977.

Schery, R.W. Plants for Man. Menlo Park: Prentice-Hall, 1972.

Klein, R.M. The Green World - An Introduction to Plants and People. New York: Harper and Row, 1986.

REQUIRED WRITING:

A five-page term paper on economically or medicinally useful plants, with minimum of five journal

references and formatted according to AIBS Style Manual for Biological Journals.

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.

Outside assignments include required textbook readings and preparation for examinations. Read text and study lecture notes. Students will also be required to complete a five-page term paper on economically or medically useful plants, read selected published articles, and develop an economic plant/plant product research chart using suggested readings and library research.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
- laboratory
- lecture-laboratory combination
- directed study

Classroom lectures supplemented with 35mm transparencies, botanical charts and models, living and preserved botanical materials (from Palomar College Herbarium - PASM); microscope demonstrations will also be used and occasional field trips to local botanical gardens (Palomar College Arboretum, Quail Botanic Garden and Balboa Park).

This course may be offered as a distance education course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.

Yes No

If yes, check all that apply. (See guidelines for preparation for definitions.)

- telecourse (on-line course)
- mediated instruction
- computer assisted instruction

GRADING POLICY AND STANDARDS (include methods for determining whether the stated objectives have been met by students):

Final grade is based on total points accumulated during the semester. 85% of grade = a minimum of four objective/subjective examinations (multiple choice and essay), plus a comprehensive final exam. The term paper and economic plant chart account for the remaining points (15%).

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?

Yes No 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 ARMSTRONG X2524

SIGNATURES ON FILE