

# BIOLOGICAL SCIENCES (BIO)

## BIO-112

### Contemporary Issues in Environmental Resources 3 UNITS

3.0 hours lecture

Through the scientific study of basic concepts in ecology, students apply their knowledge and scientific reasoning to the study of contemporary problems dealing with renewable and nonrenewable resources.

Environmental resource problems involving air, water, energy, human population growth, and plant and animal diversity are examined in context of their scientific, political, economic and social implications. Alternatives for resolving existing problems and preventing future ones will be explored. (AA/AS GE, CSU, CSU GE, IGETC, UC)

## BIO-115

### Biology of Alcohol and Other Drugs 3 UNITS

3.0 hours lecture

Study of the biological principles underlying the effects of the major legal and illegal drugs on the human body. Survey of the commonly abused drugs with regard to their chemical nature, where and how they act, and the factors that modify their effects. Heavy emphasis is placed on how drugs act on neurons in the central nervous system. (AA/AS GE, CSU, CSU GE, UC)

## BIO-122

### The Secret Life of Plants 4 UNITS

3.0 hours lecture, 3.0 hours laboratory

Examines the fundamentals of plant biology: how plants grow, develop and respond to environmental stimuli, photosynthesis, water relations and phloem transport, reproduction, and evolution. Emphasis is on structural and functional aspects of plants while focusing on seed producers. Covers contemporary topics in plant biology including the basics of genetic engineering and biotechnology, and revealing the impacts on agriculture, the environment and society. (AA/AS GE, CSU, CSU GE, IGETC, UC)

## BIO-130

### General Biology I 3 UNITS

3.0 hours lecture

Survey of the basic biological principles with particular emphasis on the molecular and cellular aspects of the organism. The unifying concepts of biology such as organization, metabolism, genetics and evolution are discussed. (AA/AS GE, CSU, CSU GE, IGETC, UC credit limit)

## BIO-131

### General Biology I Laboratory 1 UNITS

Prerequisite: "C" grade or higher or "Pass" in BIO 130 or equivalent or concurrent enrollment

3.0 hours laboratory

Laboratory experiments on the basic biological principles with particular emphasis on the molecular and cellular aspects of the organism. Meets transfer requirements for non-majors. (AA/AS GE, CSU, CSU GE, IGETC, UC credit limit)

## BIO-133

### Ethnoecology 3 UNITS

3.0 hours lecture

Ethnoecology is the study of the dynamic relationship between people, biota and their environment. Through the scientific study of the principles of ecology, students use their knowledge and scientific reasoning to assess the impacts of humans on Earth's natural systems. This course will focus on the ecological and cultural basis of indigenous land management; particular attention will be paid to the environmental stewardship of the Kumeyaay/Diegueno people of Southern California and Northern Baja California. Local field trips and restoration projects in Cuyamaca College's nature preserve will provide opportunities for working directly with natural habitats. Also listed as KUMEY 133. Not open to students with credit in KUMEY 133. (AA/AS GE, CSU, CSU GE, IGETC, UC)

## BIO-134

### Ethnobotany 3 UNITS

3.0 hours lecture

Ethnobotany is the scientific study of the relationships that exist between peoples and plants, from the perspective of their traditional medicinal, cultural and utilitarian uses. Focusing on the Kumeyaay/Diegueno people of southern California, students will utilize the principles of scientific inquiry and modern plant biology to classify native plants, identify their anatomical structures and phytochemical composition and to relate this information to how plants were woven into the culture of indigenous populations and how plants were used to sustain, heal and protect their people. The historical uses and modern applications of this knowledge will be evaluated. Local field trips will provide opportunities for identification and scientific study of the plants in their natural habitats. Also listed as KUMEY 134. Not open to students with credit in KUMEY 134. (AA/AS GE, CSU, CSU GE, IGETC, UC)

## BIO-135

### Ethnobotany/Ethnoecology Lab 1 UNITS

Prerequisite: "C" grade or higher or "Pass" in either BIO 133 or BIO 134 or KUMEY 133 or KUMEY 134 or concurrent enrollment

3.0 hours laboratory

Laboratory experiments to complement KUMEY 133/BIO 133: Ethnoecology and KUMEY 134/BIO 134: Ethnobotany. Basic concepts in cell biology, plant taxonomy/identification, plant anatomy, plant physiology, and ecology will be covered. Students will utilize the tools of scientific inquiry to examine the relationship between plants, people and the environment using hands-on experiences. The labs will feature lessons in plant morphology, plant ecology, phytochemistry, and traditional preparation and uses of plants. Particular attention will be paid to the plants and plant communities within the Kumeyaay/Diegueno ethnobotanical region of Southern California. Also listed as KUMEY 135. Not open to students with credit in KUMEY 135. (AA/AS GE, CSU, CSU GE, IGETC, UC)

## BIO-140

### Human Anatomy 4 UNITS

Prerequisite: "C" grade or higher or "Pass" in BIO 130, 131 or equivalent

2.0 hours lecture, 6.0 hours laboratory

Students will embark on a study of the systems of the human body. This is accomplished through a study of the organization of the body's systems from a microscopic level of organization to the gross anatomy level. The relationship between structure and function will be examined through the study of histological slides, photomicrographs, anatomical models and charts, and dissection of preserved specimens. (C-ID BIOL 110B) (AA/AS GE, CSU, CSU GE, IGETC, UC)

**BIO-141****Human Physiology****3 UNITS**

Prerequisite: "C" grade or higher or "Pass" in BIO 130, 131 or equivalent  
3.0 hours lecture

Study of the function and interrelationships of the nervous, endocrine, muscular, circulatory, respiratory, digestive, and reproductive systems of the human body. Relates these systems to the maintenance of homeostasis and the effects of exercise, behavior and disease on human physiology. (C-ID BIOL 120B (with BIO 141L)) (CSU, CSU GE, IGETC, UC)

**BIO-141L****Laboratory in Human Physiology****1 UNITS**

Prerequisite: "C" grade or higher or "Pass" in BIO 130, 131 or equivalent, BIO 141 or equivalent or concurrent enrollment  
3.0 hours laboratory

Laboratory course designed to illustrate the physiological principles studied in BIO 141. Emphasis is on lab-based investigations of human physiological processes. (C-ID BIOL 120B (with BIO 141)) (CSU, CSU GE, IGETC, UC)

**BIO-152****Paramedical Microbiology****5 UNITS**

Prerequisite: "C" grade or higher or "Pass" in BIO 130, 131 or equivalent  
Recommended Preparation: "C" grade or higher or "Pass" in CHEM 115 or equivalent

3.0 hours lecture, 6.0 hours laboratory

Introduction to the major groups of microorganisms and the diseases they cause. Emphasizes the concepts and techniques relevant to the student entering paramedical professions: identifying and handling bacteria, basic principles of immunology, medical microbiology and epidemiology. Principles of microbial physiology, genetics, growth and microbial control are discussed. This course satisfies the introductory microbiology requirement needed by students majoring in nursing and other paramedical fields leading to a B.S. or B.A. degree. (AA/AS GE, CSU, CSU GE, IGETC, UC)

**BIO-215****Statistics for Life Sciences****3 UNITS**

Prerequisite: "C" grade or higher or "Pass" in BIO 130, MATH 110 or equivalent

2.0 hours lecture, 3.0 hours laboratory

Methods and experience in defining and solving quantitative problems in the life sciences. Emphasis is on the design of experiments and the application of a variety of parametric and nonparametric techniques to the analysis of data. (CSU, CSU GE, IGETC, UC, UC credit limit)

**BIO-230****Principles of Cellular, Molecular and Evolutionary Biology****4 UNITS**

Prerequisite: "C" grade or higher or "Pass" in CHEM 141 or equivalent  
3.0 hours lecture, 3.0 hours laboratory

Survey of the general principles of cell, molecular and evolutionary biology at an advanced level. Emphasis is on the following topics: cellular structure and processes including energy metabolism, membrane transport and cell cycle/cell division; molecular genetics including recombinant DNA; Mendelian and non-Mendelian genetics; communication between cells; and the current models for cellular evolution. Laboratory exercises emphasize the application of these topics to biotechnology. This course along with BIO 240 is the recommended biology sequence for life science majors. It is suggested that students contact the anticipated transfer institution to ascertain specific transfer requirements for their major. Not open to students with credit in BIO 220, 221. (C-ID BIOL 135S (with BIO 240), 190) (AA/AS GE, CSU, CSU GE, IGETC, UC)

**BIO-240****Principles of Ecology, Evolution and Organismal Biology****5 UNITS**

Prerequisite: "C" grade or higher or "Pass" in MATH 110 or equivalent  
Recommended Preparation: "C" grade or higher or "Pass" in ENGL 120 or equivalent

4.0 hours lecture, 3.0 hours laboratory

Study of the origin and nature of the different forms of life utilizing evolution as a unifying theme and presenting organismal diversity within a phylogenetic framework. The relationships of environment and fundamental ecological principles, trophic roles and lifestyles to form and function will be explored through examination of comparative structure and the physiology, nutrition, circulation, gas exchange, reproduction, and development of organisms found in the three domains of life. The laboratory component emphasizes the systematics and diversity of prokaryotes, protists, fungi, plants and animals, as well as activities investigating ecological and evolutionary processes using the methods of scientific inquiry. This course along with BIO 230 is the recommended biology sequence for life science majors. It is suggested that students contact the anticipated transfer institution to ascertain specific transfer requirements for their major. Not open to students with credit in BIO 210. (C-ID BIOL 135S (with BIO 230), 140) (AA/AS GE, CSU, CSU GE, IGETC, UC)

**BIO-251****Human Dissection****1 UNITS**

Prerequisite: "C" grade or higher or "Pass" in BIO 140 or equivalent and recommendation from the student's Human Anatomy instructor  
3.0 hours laboratory

Supervised study of human anatomy through dissection of a human cadaver. Enhances knowledge gained from BIO 140 (Human Anatomy) by observing and relating those organ systems learned to an actual human cadaver. Students will identify surface landmarks and relate them to successively deeper structures, and will develop and refine dissecting skills used on human cadavers. Instruction of human anatomy at this level is intended to assist students pursuing careers in nursing and other allied health professions. Preregistration counseling with instructor is required; class size is limited. (CSU, UC)