

BIOLOGY

Division: Science/Engineering/Mathematics

Division Dean

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Counselor

Ernesto Heredia

Cypress College Biology Majors Course Sequence

Each UC and CSU university has specific transfer requirements. Please consult with your counselor and www.assist.org (<http://www.assist.org>) for campus-specific requirements.
Contact: Adel Rajab at arajab@CypressCollege.edu or (714) 484-7000 x48629.

Biological Sciences Transfer Program

Students should consult a counselor or www.assist.org (<http://www.assist.org>) for lower division major requirements for most California public universities. (See the Standard Definitions section of the catalog for a description of ASSIST.) Students transferring to an independent college/university should consult the catalog of the individual school and a counselor for lower division major requirements.

Associate in Science in Biology for Transfer Degree (AS-T) (<https://catalog.noccd.edu/cypress-college/degrees-certificates/biology/associate-in-science-in-biology-for-transfer-degree/>)

BIOL 101 C General Biology 4 Units

Advisory: High school chemistry or CHEM 101C or CHEM 107C are recommended.

Term Hours: 54 lecture and 54 laboratory. This course is a survey of modern biological concepts from the areas of molecular, cellular, organismic, and population biology, stressing evolution as the central theme of modern biology. The study of metabolism and biodiversity is also emphasized. This is a general education lecture/laboratory course in the biological sciences. This course will satisfy the Biological Sciences portion of the state college and university general education requirement. Duplicate credit not granted for BIOL 101HC. No credit if taken after BIOL 174 C, BIOL 175 C, or BIOL 177 C. (CSU/UC Credit Limitation, AA GE, CSU GE, IGETC)

BIOL 101HC Honors General Biology 4 Units

Advisory: High school chemistry or CHEM 101 C or CHEM 107 C are recommended.

Term Hours: 54 lecture and 54 laboratory. This course is an enhanced survey of modern biological concepts for honors students. The course will include concepts from the areas of molecular, cellular, organismic, and population biology, stressing evolution as the central theme of modern biology. The study of metabolism and biodiversity is also emphasized. Written essays pertaining to current issues in biology will be paramount. The class will be conducted as a seminar and will require a significant research project that uses correct documentation skills. This course will satisfy the Biological Sciences portion of the state college and university general education requirement. Duplicate credit not granted for BIOL 101 C. No credit if taken after BIOL 174 C, BIOL 175 C, or BIOL 177. (UC Credit Limitation/CSU, AA GE, CSU GE, IGETC)

BIOL 102 C Human Biology 3 Units

Term hours: 54 lecture. This course is a study of modern biological concepts presented in a human context. The concepts will include human evolution, anatomy, physiology, genetics, population biology, and ecological principles. Included in the course will be discussion on current topics on environmental and public health issues as they relate to the human condition. Not open to students with credit in BIOL 101 C or BIOL 101HC. Pass/No Pass/Letter Grade Option. (UC/CSU, AA GE, CSU GE, IGETC)

BIOL 103 C Environmental Science 3 Units

Term hours: 54 lecture. The course is a study of the ecological principles which form the basis for understanding human existence in relation to environmental quality. The topics include development of environmental policy; an overview of basic biological concepts; the function of natural systems; and an examination of the impact of humans on the environment. Explorations of environmental issues will also include the pursuit of sustainable solutions. Pass/No Pass/Letter Grade Option. (UC/CSU, AA GE, CSU GE, IGETC)

BIOL 107 C Nutrition and World Food Issues 3 Units

Term hours: 54 lecture. This course is a study of the biological basis of human nutrition, including a survey of anatomical and physiological principles. A study of the human diet in the context of disease prevention, world food supply, and ecological factors will also be included. Pass/No Pass/Letter Grade Option. (UC/CSU, AA GE, CSU GE, IGETC)

BIOL 122 C Marine Biology**4 Units**

Term hours: 54 lecture and 54 laboratory. This is a survey of the natural history and biology of marine organisms, and includes an introduction to physical and chemical oceanography, marine ecology, and energy flow within the marine environment, as well as some basic biological concepts using live ecosystems as examples. Pollution and conservation of the marine environment will also be considered. The course satisfies the biological science with a laboratory transfer requirement of universities and state colleges. A single optional boat field trip may be scheduled with a charter cost not to exceed \$30.00. Other optional no-cost field trips will be scheduled. Pass/No Pass/Letter Grade Option. (UC/CSU, AA GE, CSU GE, IGETC)

BIOL 125 C Island Biology**2 Units****Advisory:** BIOL 122 C.

Term hours: 27 lecture and 36 laboratory. This course is designed as an introduction to the nature and diversity of island life. It offers the student an opportunity to study marine communities with an emphasis on community interactions. The course will also include a consideration of marine wilderness and conservation problems as well as biological processes as they occur on islands. One or more weekend field trips for snorkeling, free diving and field study will be an integral part of the course. A boat charter fee not to exceed \$50 may be required for field trips to the islands. Pass/No Pass/Letter Grade Option. (CSU)

BIOL 135AC Prin 1 - Cell & Molecular Bio.**5 Units**

Prerequisite(s): Completion of CHEM 107C with a minimum grade of "C" or better or a passing score on the chemistry proficiency exam.

Advisory: Eligibility for college-level composition or appropriate placement.

Term hours: 54 lecture and 108 laboratory. This is the first course within the biology majors AS-T degree. This course covers principles and applications of prokaryotic and eukaryotic cell structure and function, biological molecules, homeostasis, cell reproduction and its controls, molecular genetics, classical/Mendelian genetics, cell metabolism including photosynthesis and respiration, and cellular communication. Representative topics to be included are: biomolecules, cell structure and metabolism, cell growth and reproduction, cell signaling pathways and basic Mendelian and molecular genetics. This course will meet the preparation needs of students transferring to upper division biology study. Duplicate credit not granted for BIOL 174 C. Cost of field trips not to exceed \$30.00. (UC/CSU, AA GE, CSU GE, IGETC, C-ID: BIOL 190, C-ID: BIOL 135S=BIOL 135AC+BIOL 135BC)).

BIOL 135BC Prin. 2: Organismal Biology**5 Units**

Prerequisite(s): BIOL 174C with a grade of C or better or completion of BIOL 135AC with a grade of C or better or equivalent course with a grade of C or better.

Term hours: 54 lecture and 108 laboratory. This is the second course within the biology majors AS-T degree. This course is designed to introduce students to the concepts of evolution, anatomy, physiology, and ecology. A focus of the course will be the scientific method of investigation. This course is designed for science majors in transfer programs to upper-division study of biology. Duplicate credit not granted for BIOL 175C or BIOL 276C. Cost of field trips not to exceed \$30. (CSU, AA GE, CSU GE, C-ID: BIOL 140, C-ID: BIOL 135S=BIOL 135AC + BIOL 135BC).

BIOL 160 C Integrated Medical Science**3 Units**

Term hours: 54 lecture. This is a one-semester course that includes a systematic coverage of fundamental physical/chemical principles, basic biological concepts, and fundamentals of anatomy and physiology. The course is designed for various allied health programs (psychiatric technician, court reporting, etc.) or others who desire a background in human biology. Pass/No Pass/Letter Grade Option. (UC/CSU, CSU GE, IGETC, AA GE)

BIOL 174 C Biology of Cells and Tissues**4 Units**

Prerequisite(s): Completion of or concurrent enrollment in CHEM 111AC with a minimum grade of "C".

Advisory: Eligibility for college-level composition or appropriate placement.

Term hours: 54 lecture and 54 laboratory. This is the first course within the biology majors AS degree. This course presents the biochemistry and molecular biology of cells and tissues. Representative topics to be included are: biomolecules, cell structure and metabolism, cell growth and reproduction, cell integration into tissues, and basic Mendelian and molecular genetics. This course will meet the preparation needs of students transferring to upper division biology study. Duplicate credit not granted for BIOL 111 C and BIOL 112 C. Cost of field trips not to exceed \$30.00. (UC Credit Limitation/CSU, AA GE, CSU GE, IGETC, C-ID: BIOL 190, C-ID: BIOL 135=BIOL 174 C+BIOL 175 C+ BIOL 276 C)

BIOL 175 C Evolution and Biodiversity**4 Units**

Prerequisite(s): BIOL 174 C or BIOL 111 C or equivalent course with a grade of C or better.

Term Hours: 54 lecture and 54 laboratory. This is the second course within the biology majors AS degree. This course is designed to introduce students to the concept of evolution as the mechanism responsible for diversity at all levels of biological organization. A focus of the course will be the scientific method of investigation. This course is designed for science majors in transfer programs to upper-division study of biology. Duplicate credit not granted for BIOL 113 C and BIOL 114 C. Cost of field trips not to exceed \$30. (CSU, UC Credit Limitation, AA GE, CSU GE, IGETC, C-ID: BIOL 140 and BIOL 130S = BIOL 175 C + BIOL 276 C)

BIOL 210 C Anatomy and Physiology**5 Units**

Advisory: BIOL 160 C or one semester each of college biology/chemistry completed within the last five years with a grade of C or better or one year of high school with a grade of C or better.

Term hours: 54 lecture and 108 laboratory. The course includes a study of the normal structure and function of the human body using mammalian specimens as examples. Selected physiological exercises are included which often utilize the student's own body function. This course is designed for students pursuing the health professions (diagnostic medical sonography, radiologic technology, health information technology, mortuary science, respiratory therapy, etc.). Not open to students with credit in BIOL 240 C. Pass/No Pass or Letter Grade option. (CSU/UC, AA GE, CSU GE, IGETC)

BIOL 220 C Medical Microbiology**4 Units****Prerequisite(s):** BIOL 210 C or BIOL 231 C with a grade of C or better.

Term hours: 54 lecture and 54 laboratory. This course is a study of etiology, transmission, pathogenesis, diagnosis, treatment, and prevention of infectious disease. Special attention is given to the topics of immunology and chemotherapy. Laboratory activities place emphasis on gaining practicum experience and clinical perspective through application of aseptic techniques, microscopy and physiological testing of microorganisms. This course is recommended for students of Nursing (RN), Dental Hygiene, Medical Records, and Baccalaureate degree medical or Public Health programs. Recommended background is one year each, high school chemistry/biology, or one semester each, college chemistry and biology. Pass/No Pass or Letter Grade Option (CSU/UC, AA GE, CSU GE, IGETC)

BIOL 231 C General Human Anatomy**4 Units****Prerequisite(s):** Intermediate Algebra or eligibility for MATH 120 C or MATH 120PC and eligibility for ENGL 100 C or ENGL 101 C or ESL 110 C with a grade of C or better.**Advisory:** High School Biology and Chemistry with minimum grades of "C" or BIOL 101 C or BIOL 160 C.

Term hours: 54 lecture and 54 laboratory. This course presents a logical analysis of body tissues, organs, and systems. It stresses the microscopic, developmental, and gross anatomy of mammals, with special emphasis on human anatomy. Special attention is given to pathological as well as normal conditions. The three hour laboratory includes the dissection and study of fresh and preserved specimens and models. This course is designed primarily for physical education and allied health majors. High school biology and chemistry, or equivalent is recommended background. Students are encouraged to take BIOL 101 C and BIOL 160 C if they have no previous science background. Pass/No Pass/Letter Grade Option (UC/CSU, AA GE, CSU GE, IGETC, C-ID : BIOL 110B).

BIOL 241 C General Human Physiology**4 Units****Prerequisite(s):** BIOL 210 C or BIOL 231 C with a grade of C or better.**Advisory:** CHEM 101 C.

Term hours: 54 lecture and 54 laboratory. This course is an in depth study of human function. Special attention is given to the abnormal as well as the normal functional state. The laboratory experience includes selected exercises that emphasize the interrelationships between structure and function. It is designed primarily for physical education and allied health programs that require 3 hours of laboratory per week. Pass/No Pass/Letter Grade Option. (UC/CSU, CSU GE, AA GE, IGETC). C-ID: BIOL 120B.

BIOL 276 C Ecology and Physiology**4 Units****Prerequisite(s):** BIOL 175 C with a grade of C or better.

Term hours: 54 lecture and 54 laboratory. This is the third course within the Biology majors AS degree. This course examines the basic principles governing interactions between organisms and the environment and the physiological responses of organisms to external and internal stimuli. Intended for biology majors, this lecture/lab course emphasizes ecological principles and relationships among organisms and between organisms and their environments. The course also emphasizes the physiology of plant and animal systems. Cost of field trips not to exceed \$30. (UC/CSU, AA GE, CSU GE, IGETC, C-ID: BIOL 130S= BIOL 175C + BIOL 276 C, C-ID: BIOL 150=BIOL 175 C and BIOL 276 C, C-ID: BIOL 135=BIOL 174 C, BIOL 175 C, and BIOL 276 C)

BIOL 277 C Genetics**3 Units****Prerequisite(s):** BIOL 174 C with a grade of C or better.

Term hours: 54 lecture. This course presents an introduction to genetics, inheritance and genetic changes that occur over time in individuals and populations. Basic features of the replication and expression of DNA, cell division and gene transmission are considered. Recombination and mutation in diploid organisms are discussed. Concepts of genetic variability and the role of natural selection in the evolution of populations are presented. Cost of field trips not to exceed \$30. (UC/CSU, AA GE, CSU GE, IGETC)

BIOL 278 C Molecular Biology**4 Units****Prerequisite(s):** BIOL 277 C, CHEM 211AC

Term hours: 72 lecture. This course is a study of the structure and function of biological molecules; mechanisms of gene expression and regulation, genomics, biotechnology and molecular methods of experimentation and DNA repair. In addition, this course presents the molecular mechanisms of cell signaling pathways as well as errors in these pathways leading to cancer and other disorders. The importance of viral life cycles in understanding basic molecular and cellular processes will be included. Finally, the major biochemical pathways in cells, with an emphasis on the thermodynamic constraints on living systems, will also be studied. (UC/CSU, AA GE, CSU GE, IGETC)

BIOL 298 C Biology Seminar**0.5-12 Units**

Term hours: 0-12 lecture and 0-36 laboratory depending on units attempted. This seminar is designed to intensify knowledge in a variety of biological topics. They may include lectures, discussions, field excursions, and other activities at the discretion of the instructor. Actual seminar topics will be listed in the class schedule for a particular semester. Pass/No Pass or Letter Grade option. Fees may be required - Payable at Registration. (UC Credit Limitation/CSU)

BIOL 299 C Independent Study for Biology**0.5-2 Units****Prerequisite(s):** Approved Independent Study Learning Contract

Term hours: 0-36 lecture and 0-108 laboratory depending on units attempted. This course is for biology majors who have demonstrated interest in and capability for increased knowledge of biological and medical sciences through individual study, small group discussion/conference, special laboratory projects, or field research projects. May be taken for Credit 4 times. Pass/No Pass/Letter Grade Option. (UC Credit Limitation/CSU)

At Cypress College, there are Department Program Student Learning Outcomes and Degree & Certificate Program Student Learning Outcomes.

Department Program Student Learning Outcomes:

The courses taught by this department contribute to the following ISLO/PSLOs: A-Breadth of Knowledge, Competencies, and Skills, B-Communication Skills, C-Critical Thinking, Problem Solving, and Information Competency Skills, and D-Personal, Academic, and Professional Development; specifically, the following ISLO/PSLO subcategories: A1-Science, Technology, Engineering, and Mathematics, B1-Reading, B2-Writing, B3-Communicating, B4-Presenting, C1-Analysis, C2-Computation, C3-Research, C4-Problem Solving, C5-Technology, D1-Personal Responsibility, D2-Global Citizenship, and D3-Equity.

Degree & Certificate Program Student Learning Outcomes:

The program student learning outcomes for each award can be found on the specific degree or certificate page.