CISaustralia is a leading provider of overseas study, intern, and volunteer programs for Australian university students. We pride ourselves in providing personally and academically engaging programs in each of our carefully chosen overseas locations.

CISaustralia is committed to working closely with partner universities in Australia and providing students with academic credit towards their degree for any overseas study, volunteer or intern experience. Over 98% of CISaustralia participants receive academic credit from their Australian university for their CISaustralia study, volunteer or intern program.

Please find the following subjects and associated programs related to Biology: (Please note: For exact program dates and subject offerings for programs with multiple sessions, please visit the specific program web pages).

**July in Chicago, IL, USA**
(Click to view course and program details)

**GENERAL BIOLOGY II - BIOL 102 – 3 US Credits**
Fundamental principles of biology including diversity of life, environmental and biological diversity, population and community ecology, study of plant structure and function, reproduction and controlling plant growth and development, comparative animal organ systems and mechanism of cell communication.

**GENERAL BIOLOGY II LAB - BIOL 112 – 1 US Credit**
Complements the lecture material through observation, experimentation, and when appropriate, dissection of representative organisms. Observations will include physical and chemical phenomena as well as the anatomy and physiology of selected organisms. The organisms to be studied will be selected from the kingdoms monera, protista, fungi, plantae and animalia.

**HUMAN STRUCTURE & FUNCTION II - BIOL 243 – 4 US Credits**
This class includes lecture, laboratory, and demonstrations. A continuation of BIOL 242. Anatomy of body systems and their physiology related to regulation and maintenance (cardiovascular, lymphatic respiratory, digestive and urinary systems), and reproduction and development (male and female reproductive systems.) Dissection of representative organs is required. Students will be able to demonstrate a comprehensive integrated knowledge and understanding of human anatomy and physiology at all levels.
CELL BIOLOGY - BIOL 251 – 3 US Credits
Basic molecular and cellular studies of living organisms, emphasizing the relationships between subcellular structures and biochemical and physiological functions of cells.

ECOLOGY - BIOL 265 – 3 US Credits
Relationships of organisms to their environment and to each other at the organismal, population and community levels.

NEUROBIOLOGY - BIOL 362 – 3 US Credits
The purpose of this course is to introduce major principles and concepts of modern neurobiology. An emphasis is placed upon an understanding of the electrophysiology of the neuron and the manner in which groups of neurons are organized into functional nervous systems subserving sensory, motor or integrative functions. Student will gain a solid foundation in nervous system structure and function.

July in Cusco, Peru
(Click to view course and program details)

BIODIVERSITY OF PERU – 3 Credits (48 hours)
Taught in English. The Earth’s biodiversity is composed of many millions of biological species which are the product of four billion years of evolution. Peru is one of the world’s 17 mega diverse countries. The extraordinary biodiversity of Peru means that students are able to observe many of these teeming life forms for themselves, and gain a deeper appreciation of the life that exists all around us.

July in Los Angeles, CA, USA
(Click to view course and program details)

INTRODUCTION TO ECOLOGY AND BEHAVIOUR – EE BIOL 100 – 4 US Credits
Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1 or 7B. Not open for credit to students with credit for course 118, C119A, C119B, 122 through C126, 129, 132 through 134B, 136, or 151B. Introduction to methods and topics in ecology and behavior. Growth and regulation of populations, organization of communities and ecosystems, biogeography, and behaviors animals use to find food, choose mates, and interact in social groups. Letter Grading.

INTRODUCTION TO ECOLOGY AND BEHAVIOUR LABORATORY – EE BIOL 100L – 4 US Credits
Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1 or 7B. Not open for credit to students with credit for course 118, C119A, C119B, 122 through C126, 129, 132 through 134B, 136, or 151B. Introduction to methods and topics in ecology and behavior. Growth and regulation of populations, organization of communities and ecosystems,
biogeography, and behaviors animals use to find food, choose mates, and interact in social groups. Letter Grading.

CONSERVATION BIOLOGY - EE BIOL 116 – 4 US Credits
Study of ecological and evolutionary principles as they apply to preservation of genetic, species, and ecosystem diversity. Discussion sections focus on interactions of science, policy, and economics in conserving biodiversity. Oral and written student presentation on specific conservation issues.

EVOLUTION – EE BIOL 120 – 4 US Credits
Lecture, three hours; discussion, two hours. Requisites: Life Sciences 1, 2, 3, 4, and 23L, or 7A, 7B, 7C, and 23L, Mathematics 3A and 3B (or 31A or Life Sciences 30B). Not open for credit to students with credit for course 185. Designed for departmental majors specializing in environmental and population biology. Introduction to mechanics and processes of evolution, with emphasis on natural selection, population genetics, speciation, evolutionary rates, and patterns of adaptation.

PRACTICAL COMPUTING FOR EVOLUTIONARY BIOLOGISTS AND ECOLOGISTS – EE BIOL C177 – 4 US Credits
Lecture, three hours; laboratory, two hours. Requisite: Life Sciences 1 or 7B. Introduction to fundamental skills needed for manipulation, analysis, and visualization of large data sets. Basic programming and scripting in Python as well as working in shell, regular expressions, and related topics. Concurrently scheduled with course C234. Letter grading.

EVOLUTIONARY MEDICINE: CLINICAL PERSPECTIVE ON MEDICAL, SURGICAL AND PSYCHIATRIC DISORDERS – EE BIOL 186 – 4 US Credits
Lecture, three hours; discussion, one hour. From breast cancer and heart failure to self-injury, obsessive-compulsive and eating disorders, all contemporary medical issues have evolutionary roots. Understanding of application of evolutionary thought to issues faced by physicians, veterinarians, psychologists, and other healthcare providers. Development of awareness and understanding of evolutionary roots of these disorders provides future healthcare providers with expanded perspective that enhances their practice and benefits their patients in whatever field they enter. Letter grading.

MICROBIAL GENOMICS - MIMG 158 – 4 US Credits
Evolution, biodiversity, and sequencing of genomes; bacterial and viral genomes; bioenergetics; gene knockouts; genomics of antibiotic resistance; proteomics. Guest lecturers from department and related departments who discuss key papers with focus on their areas of expertise.

STEM CELL BIOLOGY, POLITICS AND ETHICS: TEASING ARAPT ISSUES – MCD BIO 50 – 5 US Credits
Lecture, three and one half hours; discussion, 90 minutes. Developmental biology of various types of human stem cells. Important functional differences between embryonic, hematopoietic, and adult stem cells, as well as differences in their biomedical potentials.
Discussion of history of debate surrounding embryos, as well as various social, ethical, political, and economic aspects of stem cell research. P/NP or letter grading.

**BIOMEDICAL ETHICS - MCD BIO 60 – 5 US Credits**
Examination of importance of ethics in research and exploration of how and why bioethics is relevant to reproductive screening, policy formation, public regulation, and law. Provides foundation in traditional ethics, consideration of subcategories of bioethics, neuroethics, and eugenics, and how to apply ethics to contemporary issues in research and technology.

**HUMAN STEM CELLS AND MEDICINE - MCD BIO 90 – 5 US Credits**
Stem cells have potential to revolutionize way medicine is practiced today. Some stem cell therapies are already used successfully to treat thousands of people worldwide. Other stem cell therapies are considered experimental; therefore treatments must be monitored by Food and Drug Administration to ensure safety and efficacy. Some stem cell therapies are offered with minimal scientific justification, relying on hope and hype rather than scientific fact. Exploration of use of stem cells in modern medicine to take close look at science behind some of today's most famous and infamous stem cell medical applications.

**INTRODUCTION TO CELL BIOLOGY - MCD BIO 100 – 5 US Credits**
Analysis of cell organization, structure, and function at molecular level. Cell membranes and organelles, membrane transport, cellular signaling, cytoskeleton and cell movement, intracellular trafficking, cell energetics.

**INTEGRATIVE APPROACH TO DISCOVERY IN MOLECULAR, CELL AND DEVELOPMENTAL BIOLOGY – MCD BIO 100L – 5 US Credits**
Lecture, four hours; laboratory, 14 hours. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, 7C, and 107. Discovery-based research experience in molecular, cell, and developmental biology. Working in small research teams, students engage in experiments using primitive marine chordate Botryllus schlosseri. Evaluation of data through rigorous quantification and bioinformatics techniques using several online databases. Use of graphics and other software for preparation of figures and illustrations for presentations. Through execution of experiments, intrinsic aspects of research, including record keeping, quantification, scientific writing, collaborative efforts, responsibilities, ethics, and ownership. High-quality results may lead to publication in peer-reviewed scientific journals. Letter grading.

**BIODIVERSITY IN CHANGING WORLD - GEOG 2 – 5 US Credits**
Biogeographic exploration of plant and animal diversity and conservation issues on continents and islands around world. Study of physical, biotic, and human factors responsible for evolution, persistence, and extinction of species and ecological communities. Analysis of effects of human activity.

**PEOPLE AND EARTH’S ECOSYSTEMS – GEOG 5 – 5 US Credits**
Lecture, three hours; laboratory, two hours. Exploration of ways in which human activity impacts natural environment and how modification of environment can eventually have
significant consequences for human activity. Examination, using case studies, of real environmental problems that confront us today.

**GEOGRAPHY OF EXTINCTION - GEOG 126 – 4 US Credits**
Lecture, three hours; reading period, one hour. Requisite: course 5. Designed for juniors/seniors. Geographic and taxonomic survey and analysis of biotic extinctions over past 15,000 years. Identification of extinction factors and pathways through case studies of extinct and endangered species and communities.

**AFRICAN ECOLOGY AND DEVELOPMENT – GEOG 135 - 4 US Credits**
Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Overview of contemporary ecological and development issues in sub-Saharan Africa.

**CELL AND MOLECULAR BIOLOGY – LIFESCI 7A - 5 US Credits**
Lecture, three hours; discussion, 75 minutes. Introduction to basic principles of cell structure and cell biology, biochemistry, and molecular biology.

**GENETICS, EVOLUTION AND ECOLOGY – LIFESCI 7B – 5 US Credits**
Lecture, three hours; laboratory, 110 minutes. Enforced requisite: course 7A. Principles of Mendelian inheritance and population genetics. Introduction to principles and mechanisms of evolution by natural selection, population, behavioral, and community ecology, and biodiversity, including major taxa and their evolutionary, ecological, and physiological relationships.

**PHYSIOLOGY AND HUMAN BIOLOGY – LIFESCI 7C – 5 US Credits**
Lecture, three hours; discussion, 75 minutes. Enforced requisite: course 7B. Organization of cells into tissues and organs and principles of physiology of organ systems. Introduction to human genetics and genomics.

**QUANTITATIVE CONCEPTS FOR LIFE SCIENCES – LIFESCI 20 – 5 US Credits**
Lecture, three hours; discussion, two hours. Preparation: three years of high school mathematics (to algebra II), some basic familiarity with computers. Introduction to variety of quantitative concepts that are relevant to biology. Designed to enhance quantitative skills that are essential for success in life sciences, chemistry, mathematics, and physics courses that make up core curriculum for life sciences majors at UCLA. Biological examples used throughout to gain appreciation of relevance of mathematics to biology.

**MATHEMATICS FOR LIFE SCIENTISTS – LIFESCI 30A – 5 US Credits**
Lecture, three hours; laboratory, one hour. Preparation: three years of high school mathematics (to algebra II), some basic familiarity with computers. Mathematical modeling as tool for understanding dynamics of biological systems. Fundamental concepts of single-variable calculus and development of single- and multi-variable differential equation models of dynamical processes in ecology, physiology, and other subjects in which quantities change with time. Use of free computer program Sage for problem solving, plotting, and dynamical simulation in laboratory.
GENETICS – LIFESCI 107 – 5 US Credits
Lecture, three hours; discussion, 75 minutes. Enforced requisites: courses 2, 3, Chemistry 14A (or 20A), 14C (or 30A). Enforced corequisite: course 23L. Principles of Mendelian inheritance and chromosomal basis of heredity in prokaryotes and eukaryotes, recombination, biochemical genetics, mutation, DNA, genetic code, gene regulation, genes in populations.

METHODS OF APPLICATION OF COLLABORATIVE LEARNING THEORY IN LIFE SCIENCES – LIFESCI 192C/192D – 4 US Credits
Seminar, three hours; clinic, nine hours. Requisites: course 192A (may be taken concurrently) and at least one term of prior experience in same course in which collaborative learning theory is practiced and refined under supervision of instructors. With instructor guidance, students apply pedagogical principles based on current education research, assist with development of innovative instructional materials, and receive frequent feedback on their progress. May be repeated for credit. Letter grading.

INTRODUCTION TO HUMAN PHYSIOLOGY - PHYSCI 3 – 5 US Credits
Understanding of human body, its organization from molecular to cellular to tissues and organs, and how component parts function in integrated manner to permit life as we know it.

INTRODUCTION TO HUMAN ANATOMY – PHYSCI 13 – 5 US Credits
Lecture, four hours; laboratory, five hours. Not open to Physiological Science majors. Structural survey of human body, including skeletomuscular, nervous, circulatory, respiratory, digestive, and genitourinary systems. Laboratory includes examination of human cadaver specimens. Letter grading.

BIOMEDICAL TECHNOLOGY AND PHYSIOLOGY - PHYSCI 122 – 4 US Credits
Developments in biotechnology and their impact on diagnosis and treatment of disease, basic engineering principles, and designs that lend themselves to deciphering physiological states, and application of new technologies in clinical practice and biomedical research.

EXERCISE AND CARDIOVASCULAR FUNCTION – PHYSCI 136 – 5 US Credits

INTRODUCTORY PSYCHOBIOLOGY - PSYCH 15 – 4 US Credits
Survey of genetic, evolutionary, physiological, pharmacological, and experiential factors affecting behavior. Using comparative approach where appropriate, emphasis on relevance of biological mechanisms to understanding of humans and their interaction with their environment.

INTRODUCTION TO COGNITIVE SCIENCE – PSYCH 85 – 4 US Credits
Lecture, three hours. Exploration of computer metaphor of mind as an information-processing system, focusing especially on perception, knowledge representation, and
thought based on research in cognitive psychology, neuropsychology, and artificial intelligence. Many examples from visual information processing.

**PSYCHOBIOLOGY OF FEAR AND ANXIETY - PSYCH 112B – 4 US Credits**
Lecture, three hours. Requisites: courses 10, 100A, 110. Recommended: course 115. Designed for juniors/seniors. Presentation of biological and behavioral approaches to fear and anxiety, taken from laboratory and applied research. In addition to overview of major principles from each approach, emphasis on areas in which significant research advances have recently occurred. Examination of concordance and discordance between results from laboratory and applied research.

**BEHAVIOURAL NEUROSCIENCE LABORATORY - PSYCH 116 – 4 US Credits**
Lecture, one hour; laboratory, three hours. Requisites: courses 10, 100A, 100B, 115. Designed for Psychobiology and Psychology majors. Laboratory experience with various topics in behavioral neuroscience.

**COMPARATIVE PSYCHOBIOLOGY - PSYCH 118 – 4 US Credits**

**NEUROPSYCHOPHARMACOLOGY OF EMOTION AND COGNITION – PSYCH 119A – 4 US Credits**
Lecture, three hours. Requisite: course 115 or M117C. Limited to juniors/seniors. Analysis of basic pharmacologic principles, with emphasis on neurochemical modulation of emotional regulation and cognitive processes in normal and diseased state.

**INTEGRATION OF FACE AND BRAIN – PSYCH 119I – 4 US Credits**
Seminar, three hours. Requisite: course 115 or M117C. Faces play major role in social interactions in both humans and nonhuman primates and in other animals as well. Exploration of neuroanatomical, neurophysiological, and neurofunctional underpinnings of face processing (attractiveness, emotional expressions, facial skin, identity recognition, based on empirical studies that use behavioral responses in neuroimaging techniques, in effects of types of brain damage, in physiological responses, and in psychopathological states. Discussion of evolutionary approaches to faces, as well as relationship between specific genetic mutations affecting both brain and facial appearance.

**LIFE IN UNIVERSE - ASTR 5 – 4 US Credits**
Lecture, four hours; discussion, one hour. Preparation: prior introduction to astronomy. Life on Earth and prospects for life elsewhere in context of evolution of universe from simple to complex. Course material primarily from astronomy and biology but includes some chemistry, geology, and physics. Selected topics treated in some depth, but with little or no formal mathematics. P/NP or letter grading.
July in San Jose, Costa Rica
(Click to view course and program details)

TROPICAL ECOLOGY - ENV3044 – 4 Credits
Students will learn about the interactions between earth and land and how these interactions or processes affect our life and the stability of the planet. Emphasis will be given to the study of the most relevant tropical ecosystems such as: tropical rainforest, cloud forests, coral reefs and mangroves. Field trips to selected environments will provide onsite examples of some of the issues learned through class work and readings. All field trips are mandatory.

NEOTROPICAL ORNITHOLOGY: BIRDS OF COSTA RICA - ENV3100 – 4 Credits
An introduction to the main topics or ornithology, with an emphasis on neo-tropical avifauna. Major topics include the unique features that make neo-tropical avifauna a highlight of bird studies, including its evolutionary relationships; the extremely high species diversity of the neo-tropics, and the natural history of Costa Rican birds. With more than 900 bird species, Costa Rica provides a unique introduction to Neotropical ornithology and birding. Two field trips will introduce the main bird groups present in Costa Rica, their behaviour, and the skills needed to identify them.

LAND VERTEBRATES OF COSTA RICA - ENV3120 – 4 Credits
This course is an introduction to the zoology of terrestrial vertebrates in Costa Rica. Students will gain insight about various biological characteristics of the groups of land chordates in the country. Costa Rica has an immensely rich animal biodiversity, with an influence of both North American and South American fauna and is a world-renowned hotspot for animal research and conservation. Emphasis will be given to the study of Costa Rican species, but others will be discussed as well.

CONSERVATION BIOLOGY OF ENDANGERED MARINE SPECIES - ENV3160 – 4 Credits
This course aims to highlight the importance of conservation biology in managing endangered marine species, emphasising recent conversation efforts for umbrella species such as sea turtles and sharks in the Pacific waters bordering Costa Rica. Marine ecosystems of the eastern tropical Pacific provide a baseline for species of high commercial interest that meet the global demand for food. However, several marine species are threatened by unsustainable human activities such as overfishing and the destruction of habitat. Students will develop a critical understanding of conservation biology, emphasising the general concept of biodiversity and examining present-day case studies that focus on scientific investigations to answer critical aspects of the history of life, recovery programs, species management, community conservation and Marine Protected Areas (MPAs). Students will also be introduced to a wide range of practical activities by visiting field stations and “natural laboratories” throughout Costa Rica.
FRESHWATER ECOLOGY - ENV3170 – 4 Credits
Water is a vital resource for human beings. It is also a limited one, which has suffered degradation, while demand is ever growing. Freshwater ecology, otherwise known as limnology, helps us to understand the physical, chemical and biological properties of inland aquatic environments (wetlands, lakes, rivers, mangroves and reservoirs). This course emphasises the problems and conservation efforts related to water resources. Through field trips and laboratory work, students will learn methods for monitoring aquatic environments.

TROPICAL MARINE BIOLOGY - ENV3190 – 4 Credits
The course studies the balance between ecosystems and humans’ stress and demands on the constantly changing Marine environment. All field trips are mandatory. Certified divers may pay a $100 fee in order to complete two immersions in each field trip (four immersions total).

MARINE MAMMALS OF COSTA RICA: BIOLOGY AND CONSERVATION – ENV3200
Course description coming soon!

January in Dunedin, New Zealand
(Click to view course and program details)

BIO-CULTURAL HUMAN SKELETAL BIOLOGY
An introduction to human bioarchaeology, particularly evolutionary and comparative anatomy of the human body, what makes it unique among other primates and why it varies among populations. The course includes aspects of forensic anthropology.

What makes humans unique to all other primates, and how did we come to be that way? How can we explain the variation in morphology among human populations? How can we use aspects of the skeleton of past people to look at their life history? This course explores these questions by providing an introduction to the study of Biological Anthropology of the human skeleton. The course primarily focuses on the evolution, structure and function of the human skeletal system, with an introduction to bioarchaeological and forensic methods.

FORENSIC BIOLOGY
Increasingly, forensic investigations have come to rest on the techniques of forensic biology to provide vital evidence in homicides, violent crimes, disaster identification and even minor crimes. This course is designed as an introduction for the student who is interested in analysing biological evidence as it relates to legal and other investigations, or collecting and processing evidence at a crime scene or in a laboratory. Students will have an unequalled opportunity to interact with a range of National and International forensic experts, providing a sense of reality and authority that is unique.
The Forensic Biology course provides a strong basis in modern forensic biology techniques. The multidisciplinary nature of forensics depends on the integration of scientific skills within a forensic context, and hence the course includes a wide spectrum of topics.

**January in San Jose, Costa Rica**
*(Click to view course and program details)*

**TROPICAL ECOLOGY - ENV3044 – 4 Credits**
Students will learn about the interactions between earth and land and how these interactions or processes affect our life and the stability of the planet. Emphasis will be given to the study of the most relevant tropical ecosystems such as: tropical rainforest, cloud forests, coral reefs and mangroves. Field trips to selected environments will provide onsite examples of some of the issues learned through class work and readings. All field trips are mandatory.

**TROPICAL MARINE BIOLOGY – ENV3190J – 4 credits**
Learn about marine ecosystems, biodiversity and environmental issues through field trips and fieldwork in various sites around Costa Rica related to coral reefs, sandy and muddy beaches, mangroves and estuaries. This course introduces the basic concepts of oceanography, marine geology, marine ecology and marine biology, with emphasis on the interaction between species, between species and their environment and between ecosystems. It also provides information on the natural and human environmental impact, and the utility, management and conservation of the ecosystems.

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Volunteer Abroad Programs:

CIS Australia offer a wide range of Volunteer Abroad programs – over 18 in total – with broad project focuses, including community development, environmental conservation, wildlife, education, and health. The following are some programs that may complement Biology students' studies:

- Belize: Marine Conservation
- Costa Rica: Sea Turtle Conservation
- New Zealand: Environmental Sustainability
- Peru: Rainforest Environmental Conservation
- South Africa: Big Five Wildlife Management and Conservation
- Tanzania: Marine Conservation and Dolphin Research
- Thailand: Marine Conservation

View all Volunteer Abroad programs

Intern Abroad Programs:

CIS Australia offer a range of locations – 8 in total – for professional, customised internship programs that provide a comprehensive range of services and inclusions.

Please inquire about an internship placement in Biology in one of our Intern Abroad program locations.

View all Intern Abroad programs

Additional Academic Areas:

For short course offerings in other academic areas, please visit: www.CISaustralia.com.au/academic-areas

Enquire:

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