BIOLOGY (BIOL)

Courses

BIOL 116. Introduction to Human Biology. 3 Units.
Introductory course in human biology. Explores basic principles of human anatomy and physiology and their relationships to social functioning. Fulfills the human biology prerequisite for the master’s degree Social Work Program.

BIOL 406. Marine Biology. 4 Units.
Surveys marine species of the world and the oceanographic processes and ecological interactions that affect them. Emphasizes tropical and coral ecosystems. Includes an independent project. Four class hours per week, plus all-day field trips (usually on Sunday).

BIOL 407. Herpetology. 3 Units.
Covers a broad range of topics in herpetology, including systematics, diversity, morphology, physiology, behavior, ecology, conservation, and research methodology. Focuses field experience on Southern California herpetology. Two hours lecture, three-hour laboratory each week.

BIOL 409. Mammalogy. 4 Units.
Studies the mammals of the world, with emphasis on North America. Includes classroom and field study of systematics, distribution, behavior, and ecology. Per week: class three hours, one three-hour laboratory.

BIOL 414. Biology of Marine Invertebrates. 4 Units.
Behavior, physiology, ecology, morphology, and systematics of marine invertebrates, with emphasis on morphology and systematics. Three class hours per week, one-day field trip alternate weeks, or the equivalent.

BIOL 415. Ecology. 4 Units.
Principles of terrestrial, aquatic, and marine ecology—with a focus on individual, population, community, and ecosystem levels of organization. Laboratory work includes field studies that examine ecological principles. Per week: class three hours, laboratory three hours.

BIOL 426. Invertebrate Paleontology. 4 Units.
Structure, classification, ecology, and distribution of selected fossil invertebrate groups. Considers principles and methods involved in the study and analysis of invertebrate fossils. Per week: class three hours, plus one three-hour laboratory.

BIOL 427. Vertebrate Paleontology. 4 Units.
Fossil vertebrates, with emphasis on the origins of major groups. Systematics, biology, and biogeography of ancient vertebrates. Per week: class three hours, plus one three-hour laboratory.

BIOL 428. Genetics and Speciation. 4 Units.
Introduces genetic mechanisms of biological change. Processes of inheritance through time evaluated in their ecological context.

BIOL 437. Animal Behavior. 4 Units.
Behavioral mechanisms of animals and their role in survival. Lectures and projects.

BIOL 439. Behavioral Ecology. 4 Units.
Examines in depth how behavior contributes to the survival of animals, with emphasis on behavioral strategies that reflect adaptation to the animal’s environment.

BIOL 444. Paleobotany. 4 Units.
Fossil plants; their morphology, paleoecology, taphonomy, classification, and stratigraphic distribution. Analyzes floral trends in the fossil record. Per week: class three hours, plus one three-hour laboratory or field trip.

BIOL 449. Biodiversity and Conservation. 3 Units.
Examines contemporary issues related to diminishing biodiversity on regional and global scales, and the need to conserve both biodiversity and the critical habitats that support threatened flora and fauna.

BIOL 456. Techniques in Vertebrate Ecology. 3 Units.
Theory and practice of vertebrate ecology research, including marking methods, population estimation, home range and habitat analysis, and radiotelemetry. Software used extensively for analysis of data, some of which will be collected during field trips.

BIOL 465. Introduction to GIS for the Natural Sciences. 2 Units.
Principles and practice of GIS data acquisition, data editing, map making, and geodatabase management. Recommended for students beginning a research project.

BIOL 466. Multivariate Statistics. 3 Units.
Practical, software-based application of multivariate statistics to complex data sets, including both null hypothesis testing and practical significance. Builds on the foundation of an introductory statistics course.

BIOL 475. Philosophy of Science and Origins. 4 Units.
Concepts in the history and philosophy of science, and the application of these principles in analyzing current scientific trends.

BIOL 479. Readings in Biology. 1-4 Units.
Studies, analyzes, and discusses current and classic papers.

BIOL 488. Current Topics in Biology. 1-4 Units.
Reviews cutting-edge literature in the biological sciences. Different sections may be repeated for additional credit.

BIOL 495. Undergraduate Research. 1-4 Units.
Student pursues original investigation and/or literature study under the direction of a faculty member. May be repeated for additional credit.

BIOL 497. Special Projects in Biology. 1-4 Units.
Student responsible for a special research project in the field, laboratory, museum, or library. May be repeated for additional credit.

BIOL 502. Orientation to Graduate Biology. 1 Unit.
Introduces students to skills and strategies for successfully navigating through EBS as graduate biology students. Provides opportunities for discussion, activities related to topic areas, discovery, group exchange, instruction, and critical evaluation and decision making regarding ethical practices in research.

BIOL 504. Biology of Marine Invertebrates. 4 Units.
Behavior, physiology, ecology, morphology, and systematics of marine invertebrates, with emphasis on morphology and systematics. Per week: class three hours, one-day field trip alternate weeks, or the equivalent.

BIOL 505. Marine Biology. 4 Units.
Surveys marine species of the world, and the oceanographic processes and ecological interactions that affect them. Emphasizes tropical and coral ecosystems. Includes an independent project. Per week: class four hours, plus all-day field trips (usually on Sundays).

BIOL 507. Herpetology. 3 Units.
Covers a broad range of topics in herpetology, including systematics, diversity, morphology, physiology, behavior, ecology, conservation, and research methodology. Field experience focuses on southern California herpetology. Per week: Two hours lecture and a three-hour laboratory.

BIOL 512. Marine Biology. 4 Units.
Surveys marine species of the world, and the oceanographic processes and ecological interactions that affect them. Emphasizes tropical and coral ecosystems. Includes an independent project. Per week: class four hours, plus all-day field trips (usually on Sundays).

BIOL 514. Biogeography. 3 Units.
Present and past distribution and migrations of the natural populations of organisms.
BIOL 517. Ecological Physiology. 4 Units.
Studies the interface between the individual and the environment, with emphasis on unusual environments, in order to explore the limits of physiological systems. Per week: class four hours. Offered alternate years.

BIOL 518. Readings in Ecology. 2 Units.
Studies, analyzes, and discusses current and classic papers.

BIOL 529. Mammalogy. 4 Units.
Studies the mammals of the world, with emphasis on North America. Includes classroom and field study of systematics, distribution, behavior, and ecology. Per week: class three hours, one three-hour laboratory. Additional work required beyond BIOL 409.

BIOL 539. Behavioral Ecology. 4 Units.
Examines in depth how behavior contributes to the survival of animals, with an emphasis on behavioral strategies that reflect adaptation to the animal's environment.

BIOL 545. Genetics and Speciation. 4 Units.
Comparative analysis of species concepts, mechanisms of speciation, and analysis of micro- and macroevolution. Prerequisite: A course in genetics and philosophy of science.

BIOL 546. Techniques in Vertebrate Ecology. 3 Units.
Theory and practice of vertebrate ecology research, including marking methods, population estimation, home range and habitat analysis, and radiotelemetry. Software used extensively for analysis of data, some of which will be collected during field trips.

BIOL 549. Biodiversity and Conservation. 3 Units.
Examines contemporary issues related to diminishing biodiversity on regional and global scales and the need to conserve both biodiversity and the critical habitats that support threatened flora and fauna.

BIOL 555. Molecular Genetics. 3 Units.
An overview of the molecular basis of life, with emphasis on DNA as an information storage medium. The systems of information retrieval found in prokaryotes and eukaryotes.

BIOL 558. Philosophy of Science. 4 Units.
Studies selected topics in the history and philosophy of science, and applies these principles in analyzing contemporary scientific trends.

BIOL 559. Philosophy of Science and Origins. 1 Unit.
Studies selected topics in the history and philosophy of science, and applies these principles in analyzing current scientific trends. Provides an advanced update in the topic for students who have had a similar course at the undergraduate level.

BIOL 565. Introduction to GIS for the Natural Sciences. 2 Units.
Principles and practice of GIS data acquisition, data editing, map making, and geodatabase management. Recommended for students who are beginning a research project.

BIOL 566. Multivariate Statistics. 3 Units.
Practical, software-based application of multivariate statistics to complex data sets, including both null hypotheses testing and practical significance. Builds on the foundation of an introductory statistics course.

BIOL 588. Current Topics in Biology. 1-5 Units.
Reviews cutting-edge literature in the biological sciences. Different sections may be repeated for additional credit.

BIOL 589. Readings in Biology. 1-4 Units.
Studies, analyzes, and discusses current and classic papers on an individual basis with advisor.