Undergraduate Majors

• Major in Biological Science (http://catalog.colostate.edu/general-catalog/colleges/natural-sciences/biology/biological-science-major/)
  • Biological Science Concentration (http://catalog.colostate.edu/general-catalog/colleges/natural-sciences/biology/biological-science-major-biological-science-concentration/)
  • Botany Concentration (http://catalog.colostate.edu/general-catalog/colleges/natural-sciences/biology/biological-science-major-botany-concentration/)
  • Major in Zoology (http://catalog.colostate.edu/general-catalog/colleges/natural-sciences/biology/zoology-major/)

Minors

• Minor in Botany (http://catalog.colostate.edu/general-catalog/colleges/natural-sciences/biology/botany-minor/)
• Minor in Zoology (http://catalog.colostate.edu/general-catalog/colleges/natural-sciences/biology/zoology-minor/)

Graduate Programs in Biology

The department offers graduate programs leading to Master of Science and Doctor of Philosophy degrees in Biological Science. Students interested in graduate work should refer to the Graduate and Professional Bulletin (http://catalog.colostate.edu/general-catalog/graduate-bulletin/) (http://catalog.colostate.edu/general-catalog/graduate-bulletin/) and the Department of Biology (http://www.biology.colostate.edu).

Master's Programs

• Master of Science in Biological Science, Plan A and Plan B (http://catalog.colostate.edu/general-catalog/colleges/natural-sciences/biology/biological-science-ms/)

Ph.D. Programs

• Ph.D. in Biological Science (http://catalog.colostate.edu/general-catalog/colleges/natural-sciences/biology/biological-science-phd/)

Courses

BZ 100 Introduction to Biology Credits: 3 (0-0-3)
Course Description: Basic concepts in biology, including genetics, the human body, and interactions with their environment.
Prerequisite: None.
Registration Information: Offered as a telecourse only.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 101 Humans and Other Animals (GT-SC2) Credits: 3 (3-0-0)
Course Description: Characteristics of animals, their evolution and diversity; humans considered as an animal.
Prerequisite: None.
Registration Information: Credit not allowed for students who have already taken BZ 110 or LIFE 102 or LIFE 103. Sections may be offered: Online.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 104 Basic Concepts of Plant Life (GT-SC2) Credits: 3 (3-0-0)
Course Description: Broad concepts of biology with major emphasis on plant life.
Prerequisite: None.
Registration Information: For nonscience and physical science majors. Sections may be offered: Online. Credit not allowed for students who have already taken BZ 120 or LIFE 102 or LIFE 103.
Terms Offered: Fall, Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 105 Basic Concepts of Plant Life Laboratory (GT-SC1) Credit: 1 (0-2-0)
Course Description: Laboratory exercises covering fundamental biological concepts related to plants and plant-like organisms.
Prerequisite: BZ 104, may be taken concurrently.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: Yes.
Additional Information: Biological & Physical Sciences 3A, Natural & Physical Sciences w/ lab (GT-SC2).
BZ 110 Principles of Animal Biology (GT-SC2) Credits: 3 (3-0-0)
Course Description: General features (body form, physiology, life history, ecology) and evolutionary relationships of major phyla of animals.
Prerequisite: None.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 120 Principles of Plant Biology (GT-SC1) Credits: 4 (3-3-0)
Course Description: Diversity of relationships of plants and their structural and functional characteristics.
Prerequisite: None.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: Yes.

BZ 192 First Year Seminar—Biology/Zoology Credit: 1 (1-0-0)
Course Description: Introduction to the biological science and zoology majors through development of academic skills necessary for success within the sciences, exposure to academic resources, science career pathways, research, and relevant topics like globalization and diversity in science fields.
Prerequisite: None.
Registration Information: Freshman only. This is a partial semester course. Credit not allowed for both BZ 180A1 and BZ 192.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 212 Animal Biology-Invertebrates Credits: 4 (3-3-0)
Course Description: General biology of invertebrates; their characteristics, classification, and adaptations.
Prerequisite: LIFE 103 or BZ 110 and BZ 111.
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: Yes.

BZ 214 Animal Biology-Vertebrates Credits: 4 (3-3-0)
Course Description: General biology of vertebrates; their characteristics, classification, and adaptations.
Prerequisite: BZ 111 and BZ 110 or LIFE 103.
Registration Information: Must register for lecture and laboratory. Required field trips.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: Yes.

BZ 220 Introduction to Evolution Credits: 3 (3-0-0)
Course Description: Fundamental concepts in evolutionary biology.
Prerequisite: BZ 110 or BZ 120 or LIFE 103.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 223 Plant Identification Credits: 3 (2-2-0)
Course Description: Relationships and identification of flowering plants.
Prerequisite: BZ 120 or LIFE 103.
Registration Information: Must register for lecture and laboratory.
Terms Offered: Fall, Summer.
Grade Mode: Traditional.
Special Course Fee: Yes.

BZ 296 Group Study-Biology Credits: Var[1-3] (0-0-0)
Course Description: Faculty-directed group investigation of areas of special interest in biology.
Prerequisite: None.
Registration Information: Written consent of instructor.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 300 Animal Behavior Credits: 3 (3-0-0)
Course Description: Principles of ethology, behaviors of nonhuman animals emphasizing their adaptive significance and phylogenetic relationships.
Prerequisite: BZ 111 and BZ 110 or LIFE 103.
Terms Offered: Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 310 Cell Biology Credits: 4 (3-3-0)
Course Description: Structure and function of cells emphasizing molecular mechanisms. Communication, metabolism, motility, genetics, growth, and reproduction.
Prerequisite: (BZ 110 or BZ 120 or LIFE 103) and (CHEM 113).
Registration Information: Must register for lecture and laboratory.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: Yes.

BZ 311 Developmental Biology Credits: 4 (3-2-0)
Course Description: Developmental aspects of growth and differentiation stressed in higher plants and animals.
Prerequisite: BZ 310.
Registration Information: Must register for lecture and laboratory.
Terms Offered: Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: Yes.

BZ 325 Plant Systematics Credits: 4 (3-2-0)
Course Description: Principles and contemporary methods of classification of plants, and the application of modern phylogenetic theory in comparative biology.
Prerequisite: BZ 220.
Registration Information: Must register for lecture and laboratory.
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Course Description</th>
<th>Prerequisite</th>
<th>Term Offered</th>
<th>Special Course Fee</th>
<th>Grade Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>BZ 329</td>
<td>Herpetology</td>
<td>4</td>
<td>Integrates knowledge and competencies spanning all scales of biology – molecules to ecosystems – using amphibians and reptiles as focal taxa.</td>
<td>BZ 110 and BZ 111 or LIFE 102 and LIFE 103.</td>
<td>Spring</td>
<td>No.</td>
<td>Yes.</td>
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<tr>
<td>BZ 330</td>
<td>Mammalogy</td>
<td>3</td>
<td>Integrates knowledge and competencies spanning all scales of biology – molecules to ecosystems – using amphibians and reptiles as focal taxa.</td>
<td>BZ 110 or LIFE 103.</td>
<td>Fall</td>
<td>No.</td>
<td>Traditional</td>
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<tr>
<td>BZ 331</td>
<td>Developmental Plant Anatomy</td>
<td>4</td>
<td>Structure of plant cells, tissues, and organs as they develop.</td>
<td>BZ 120 or LIFE 103.</td>
<td>Fall (even years)</td>
<td>No.</td>
<td>Traditional</td>
</tr>
<tr>
<td>BZ 332</td>
<td>Introductory Phycology</td>
<td>4</td>
<td>Evolution, diversity, ecology and global impact of algae.</td>
<td>BZ 120 or LIFE 103.</td>
<td>Fall (even years)</td>
<td>No.</td>
<td>Traditional</td>
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<tr>
<td>BZ 333</td>
<td>Introductory Mycology</td>
<td>4</td>
<td>Groups of fungi including classification, structure, morphogenesis, phylogeny, and genetics and reproduction.</td>
<td>BZ 120 or LIFE 103.</td>
<td>Fall</td>
<td>No.</td>
<td>Traditional</td>
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<tr>
<td>BZ 335</td>
<td>Ornithology</td>
<td>3</td>
<td>Biology of birds, especially behavior, ecology, and identification in the laboratory and field.</td>
<td>BZ 111 and BZ 110 or LIFE 103.</td>
<td>Spring</td>
<td>No.</td>
<td>Yes.</td>
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<tr>
<td>BZ 338</td>
<td>Comparative Morphology of Vascular Plants</td>
<td>4</td>
<td>Origin, evolution, structure, and reproduction of the vascular plants, including comparative study of organs occurring in each group.</td>
<td>BZ 120 or LIFE 103.</td>
<td>Fall</td>
<td>No.</td>
<td>No.</td>
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<tr>
<td>BZ 340</td>
<td>Field Mammalogy</td>
<td>4</td>
<td>An intensive field course that introduces field wildlife techniques through the lens of studying the evolutionary relationships, ecology, and conservation of Colorado mammals. Opportunities to learn about wildlife handling and study techniques and apply them in independent research projects. A significant portion of the course is spent in the field, primarily at the Semi-arid Grasslands Research Center northeast of Fort Collins.</td>
<td>BZ 110 or LIFE 103.</td>
<td>Spring (odd years)</td>
<td>No.</td>
<td>No.</td>
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<tr>
<td>BZ 346</td>
<td>Population and Evolutionary Genetics</td>
<td>3</td>
<td>Evolutionary theories and history; heredity mechanisms that are basis for variation, evolution, and biological communication between generations.</td>
<td>(BZ 220) and (MATH 155) and (STAT 301 or STAT 307 or ERHS 307).</td>
<td>Fall</td>
<td>No.</td>
<td>No.</td>
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<tr>
<td>BZ 348</td>
<td>Theory of Population and Evolutionary Ecology</td>
<td>4</td>
<td>Principles and methods for building, analyzing, and interpreting mathematical models of ecological and evolutionary problems in biology.</td>
<td>MATH 155 or MATH 160.</td>
<td>Fall</td>
<td>No.</td>
<td>No.</td>
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<tr>
<td>BZ 349</td>
<td>Tropical Ecology and Evolution</td>
<td>3</td>
<td>Broad introduction to terrestrial and aquatic tropical biodiversity and the ecological and evolutionary processes that generate and maintain it.</td>
<td>BZ 220.</td>
<td>Fall</td>
<td>No.</td>
<td>No.</td>
</tr>
</tbody>
</table>
BZ 350 Molecular and General Genetics  Credits: 4 (3-0-1)
Course Description: Mendelian, molecular, and population genetics emphasizing the molecular basis of genetics.
Prerequisite: (BZ 110 or BZ 120 or LIFE 102) and (STAT 201, may be taken concurrently or STAT 301, may be taken concurrently or STAT 307, may be taken concurrently or ERHS 307, may be taken concurrently).
Registration Information: Must register for lecture and recitation.
Terms Offered: Fall, Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 360 Bioinformatics and Genomics  Credits: 3 (3-0-0)
Course Description: Genomics, bioinformatics, and basic computer programming for biologists.
Prerequisite: BZ 110 or BZ 120 or LIFE 102.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 384 Supervised College Teaching  Credits: Var[1-5] (0-0-0)
Course Description:
Prerequisite: None.
Registration Information: 3.0 overall GPA; written consent of instructor; grade of A in course with which student assists. A maximum of 10 combined credits for all 384 and 484 courses are counted towards graduation requirements.
Terms Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 401 Comparative Animal Physiology  Credits: 3 (3-0-0)
Course Description: Physiological mechanisms of digestion, metabolism, osmoregulation, excretion, circulation, and respiration in vertebrate and invertebrate animals.
Prerequisite: BZ 214.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 415 Marine Biology  Credits: 4 (3-0-1)
Course Description: Marine organisms, habitats, and communities.
Prerequisite: LIFE 320.
Registration Information: Must register for lecture and recitation.
Term Offered: Spring (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 416 Pollination Biology and Management  Credits: 3 (3-0-0)
Also Offered As: SOCR 416.
Course Description: Basic pollination processes and pollination ecology, its relation to fruit formation, crop production and yield. Learn about pollination biology of cultivated crops and plants in natural areas. The knowledge gained is critical in formulating practices for understanding plant-pollinator mutualism and coevolution, pollination management, restoring habitats and for pollinator conservation.
Prerequisite: BZ 120 or HORT 100 or LIFE 103 or SOCR 100.
Registration Information: Required field trips. Credit allowed for only one of the following: BSPM 415, BZ 416, SOCR 415, or SOCR 416.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 418 Ecology of Infectious Diseases  Credits: 4 (3-0-1)
Course Description: Ecological perspectives of infectious disease outbreaks in wildlife and human populations.
Prerequisite: LIFE 320.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 420 Evolutionary Medicine  Credits: 3 (3-0-0)
Course Description: Integration of evolutionary biology with behavior, genetics, and ecology to understand health and disease. Exploration of insights into medical research and practice (diagnosis and therapy) and human health from an evolutionary standpoint. Fundamentals of evolution, and the importance of evolutionary biology in understanding the ultimate and proximate causes of human disease. Engage in scientific discourse.
Prerequisite: BZ 110 and BZ 111 or LIFE 102.
Registration Information: Sophomore standing.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 424 Principles of Systematic Zoology  Credits: 3 (3-0-0)
Also Offered As: BSPM 424.
Course Description: Principles and methods of classification, zoological nomenclature, taxonomic decisions regarding species and higher categories.
Prerequisite: BZ 111 and BZ 110 or LIFE 103.
Registration Information: Credit not allowed for both BZ 424 and BSPM 424.
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: Yes.

BZ 425 Conservation and Population Genomics  Credits: 3 (3-0-0)
Course Description: Introduction to molecular genetic markers for questions in ecology, evolution, behavior, and conservation.
Prerequisite: BZ 220.
Term Offered: Fall (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 430 Animal Behavior and Conservation  Credits: 3 (3-0-0)
Course Description: The interface between animal behavior and conservation biology, exploring how behavioral tools can be applied to conservation problems.
Prerequisite: (BZ 110 and BZ 111 or LIFE 103) and (BZ 300).
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 433 Behavioral Genetics  Credits: 4 (3-0-1)
Course Description: An integrative view of genetic basis of animal behavior, with emphasis on complex behaviors and societal implications of genetics research.
Prerequisite: BZ 310.
Registration Information: Must register for lecture and recitation. Required field trips.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.
BZ 435A Study Abroad--Honduras: Field Course--Dolphin Behavior and Physiology Credits: 2 (0-0-2)
Course Description: Field program offers an 8-day research experience to Roatan, Honduras. Study animal behavior, animal physiology, and conservation methods at the Roatan Institute for Marine Science (RIMS). Classroom lectures and discussions provide the framework to develop an understanding of the subject matter. Develop the skills necessary to conduct preliminary research.
Prerequisite: BZ 110 and BZ 111 or BZ 120 or LIFE 102.
Registration Information: Sophomore standing. This is a partial semester course.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 440 Plant Physiology Credits: 3 (3-0-0)
Course Description: Functions and activities of plants.
Prerequisite: BZ 120 or LIFE 103.
Registration Information: Sections may be offered: Online.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 441 Plant Physiology Laboratory Credits: 2 (0-2-1)
Course Description: Laboratory applications of plant physiology principles.
Prerequisite: BZ 440, may be taken concurrently.
Registration Information: Must register for laboratory and recitation.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 449A Study Abroad: Ecology/Conservation--Ecuadorian Biodiversity Credits: 4 (0-0-4)
Course Description: Winter (January) study abroad experience in Ecuador. First-hand exposure to the unparalleled biodiversity of Ecuador. Ecuador is an ideal location to learn about tropical biodiversity, because it houses an enormous diversity of tropical ecosystems in a relatively small geographic area, all of which are very accessible. Students will visit these ecosystems—including cloud forest, páramo, and lowland Amazonian rainforest.
Prerequisite: BZ 220.
Registration Information: Junior standing. Written consent of instructor.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 450 Plant Ecology Credits: 4 (3-2-0)
Course Description: Relation of plants to their environment.
Prerequisite: LIFE 103 or BZ 120.
Registration Information: Must register for lecture and laboratory.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 455 Human Heredity and Birth Defects Credits: 3 (3-0-0)
Course Description: Human heredity and its individual and social implications; causes of congenital defects.
Prerequisite: BZ 110 and BZ 111 or LIFE 103.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 460 Genome Evolution Credits: 4 (3-0-1)
Course Description: Evolution of DNA, RNA, and proteins; use of genomic data to infer evolutionary history and processes.
Prerequisite: BZ 220 and BZ 350.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 462 Parasitology and Vector Biology Credits: 5 (3-4-0)
Also Offered As: BSPM 462 and MIP 462.
Course Description: Protozoa, helminths, and insects and related anthropods of medical importance; systematics, epidemiology, host damage and control.
Prerequisite: (BZ 110 or LIFE 103) and (BZ 212 or LIFE 206 or MIP 302).
Registration Information: Must register for lecture and laboratory. Credit allowed for only one of the following: BZ 462, BSPM 462, MIP 462.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 466 Biological Basis of Animal Behavior Credits: 4 (3-2-0)
Course Description: An integrative view of mechanisms of animal behavior spanning genetics, neural systems, development, functional morphology, and evolution.
Prerequisite: (BMS 325 or BZ 310 or LIFE 210) and (STAT 301 or STAT 307).
Term Offered: Spring (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 471 Stream Biology and Ecology Credits: 3 (3-0-0)
Course Description: Biology and ecology of running waters.
Prerequisite: LIFE 320 or LAND 220 or LIFE 220.
Term Offered: Fall (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 472 Stream Biology and Ecology Laboratory Credit: 1 (0-3-0)
Course Description: Field sampling and laboratory analysis of habitats, biota, and ecological relationships in running waters.
Prerequisite: BZ 471, may be taken concurrently.
Registration Information: Required field trips.
Term Offered: Fall (odd years).
Grade Mode: Traditional.
Special Course Fee: Yes.

BZ 474 Limnology Credits: 3 (2-2-0)
Also Offered As: ESS 474.
Course Description: Biology, chemistry, and physics of lakes including limnological methods.
Prerequisite: LAND 220 or LIFE 220 or LIFE 320.
Registration Information: Must register for lecture and laboratory. Required field trips. Credit not allowed for both BZ 474 and ESS 474.
Term Offered: Spring (odd years).
Grade Mode: Traditional.
Special Course Fee: No.
BZ 475 Marine Mammalogy Credits: 3 (3-0-0)
Course Description: Taxonomy, evolution, morphology, physiological adaptations, behavior, and ecology of marine animals.
Prerequisite: BZ 214.
Registration Information: Junior standing. Credit not allowed for both BZ 475 and BZ 481A3.
Term Offered: Fall (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 476 Genetics of Model Organisms Credits: 3 (3-0-0)
Also Offered As: BZ 576.
Course Description: Advanced topics in model genetic systems including molecular and developmental genetics.
Prerequisite: BZ 350 or LIFE 201A or LIFE 201B or SOCR 330.
Registration Information: Junior standing. Credit not allowed for both BZ 476 and BZ 576.
Term Offered: Fall (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 479 Biology and Behavior of Dogs Credits: 3 (3-0-0)
Also Offered As: VS 479.
Course Description: Interactions of physiology, neurobiology, and genetics on behavior of domestic dogs, and how evolution and domestication influence behavioral traits.
Prerequisite: BZ 110 or LIFE 103.
Registration Information: Credit not allowed for both BZ 479 and VS 479. Sections may be offered: Online.
Terms Offered: Fall, Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 482A Study Abroad: Field Marine Biology Credits: 4 (0-0-4)
Course Description: Exposure to two of the most productive and biologically diverse marine areas in North America. Field sampling and exploration of marine ecosystems from levels of primary production to the top level predators. Students will learn a wide variety of hands on sampling techniques and data analyses with the goal of comparing the marine ecology of the Baja peninsula.
Prerequisite: BZ 415 and BZ 496.
Registration Information: Junior Standing. Written consent of instructor. Students apply through Office of International Programs.
Term Offered: Summer.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 482B Study Abroad: Field Course in Dolphin Behavior & Physiology Credits: 2 (0-0-2)
Course Description: This field program offers an 8–day research experience to Roatan, Honduras, where students will study animal behavior; animal physiology and conservation methods at the Roatan Institute for Marine Science (RIMS). Classroom lectures and discussions provide the framework to develop an understanding of the subject matter. Fieldwork allows students to develop the skills necessary to conduct preliminary research.
Prerequisite: BZ 110 and BZ 111 or BZ 120 or LIFE 102.
Registration Information: Sophomore standing.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 482C Study Abroad--Baja California Sur. Practices in Marine Ecology Credits: 3 (0-0-3)
Course Description: Practical experience in techniques used to observe marine ecosystems. Apply these techniques to three distinct ecosystems found in Baja California Sur: Tidal mangroves, pelagic open ocean systems, and coral reefs.
Prerequisite: LIFE 320.
Registration Information: Sophomore Standing. Written consent of instructor. Students apply through Office of International Programs.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 487 Internship Credits: Var[1-12] (0-0-0)
Course Description: Supervised work-related research experience in laboratory or field setting with consultation and approval of a regular faculty member.
Prerequisite: None.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 491A Seminar: Behavior Credits: Var[1-3] (0-0-0)
Course Description:
Prerequisite: None.
Terms Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 492A Seminar: Genetics Credits: Var[1-3] (0-0-0)
Course Description:
Prerequisite: None.
Terms Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 492B Seminar: Ecology Credits: Var[1-3] (0-0-0)
Course Description:
Prerequisite: None.
Terms Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 492C Seminar: Ornithology Credits: Var[1-3] (0-0-0)
Course Description:
Prerequisite: None.
Terms Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 492D Seminar: Evolution Credits: Var[1-3] (0-0-0)
Course Description:
Prerequisite: None.
Terms Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 497A Seminar: Herpetology Credits: Var[1-3] (0-0-0)
Course Description:
Prerequisite: None.
Terms Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 576 Laboratory Animal Care Credits: 1 (1-0-1)
Course Description: Weekly supervised work-related experience in laboratory animal care.
Prerequisite: None.
Term Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.
BZ 492G Seminar: Departmental Credits: Var[1-3] (0-0-0)
Course Description:
Prerequisite: None.
Terms Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 495 Independent Study Credits: Var[1-3] (0-0-0)
Course Description:
Prerequisite: None.
Registration Information: Maximum of 7 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 496 Group Study—Biology Credits: Var[1-3] (0-0-0)
Course Description: Faculty-directed group investigation of areas of special interest in biology.
Prerequisite: None.
Registration Information: Written consent of instructor.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 498 Laboratory or Field Research Credits: Var[1-6] (0-0-0)
Course Description: Supervised laboratory or field research in biology, botany, or zoology.
Prerequisite: None.
Registration Information: Written consent of research mentor.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 505 Cognitive Ecology Credits: 3 (3-0-0)
Course Description: The evolutionary ecology of mechanisms related to information processing and decision-making in animals.
Prerequisite: BZ 300.
Term Offered: Fall (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 510 Zoophysiological Ecology Credits: 3 (3-0-0)
Course Description: Concepts, principles, and examples of adaptive physiological strategies used by animals.
Prerequisite: (BMS 300 or BMS 360 or BZ 401) and (LIFE 320 or LAND 220 or LIFE 220).
Term Offered: Spring (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 515 Physiological Ecology of Marine Vertebrates Credits: 3 (3-0-0)
Course Description: Physiological adaptations of vertebrates to different marine environments.
Prerequisite: (BZ 214 and BZ 330) and (BC 351 or BC 401 or BMS 300 or BZ 401).
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 520 Advanced Systematics Credits: 3 (3-0-0)
Also Offered As: BSPM 520.
Course Description: Theory and practice of modern systematics.
Prerequisite: BZ 325 or BZ 424 or BSPM 424.
Registration Information: Credit not allowed for both BZ 520 and BSPM 520.
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 525 Advanced Conservation & Evolutionary Genomics Credits: 4 (3-0-1)
Course Description: Population genetic theory and application of genomic methods to conservation.
Prerequisite: (BZ 220 and BZ 350) and (STAT 301 or STAT 307).
Registration Information: Junior standing. Must register for lecture and recitation.
Term Offered: Fall (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 526 Evolutionary Ecology Credits: 3 (3-0-0)
Also Offered As: BSPM 526.
Course Description: Adaptation to abiotic and biotic environments; how current ecological processes interact with evolutionary history.
Prerequisite: LIFE 320 or LAND 220 or LIFE 220.
Registration Information: Credit not allowed for both BZ 526 and BSPM 526.
Term Offered: Fall (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 530 Ecological Plant Morphology Credits: 2 (2-0-0)
Course Description: Adaptive significance and evolution of plant form and structure.
Prerequisite: (BZ 220) and (LIFE 320 or BZ 450).
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 535 Behavioral Ecology Credits: 3 (3-0-0)
Course Description: Evolutionary and theoretical perspectives in animal behavior using examples from model empirical systems; emphasis on decision rules and social behavior.
Prerequisite: BZ 220.
Registration Information: Graduate standing. Written consent of instructor.
Term Offered: Fall (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 537 Topics in Mycology Credits: 3 (2-2-0)
Course Description: Features common to all fungi; trends in structure, function, and behavior.
Prerequisite: BZ 333.
Registration Information: Must register for lecture and laboratory.
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.
BZ 540  Translocation in Plants  Credits: 2 (2-0-0)
Course Description: Transport of sugars, organic and inorganic ions, water, and hormones across membranes and through vascular systems of plants.
Prerequisite: BZ 331 and BZ 440.
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 544  Presenting Research in Biology  Credits: 2 (2-0-0)
Course Description: Procedures for preparing and presenting results of biological research in scientific journals and at professional meetings.
Prerequisite: None.
Registration Information: Written consent of instructor.
Term Offered: Fall.
Grade Mode: S/U Sat/Unsat Only.
Special Course Fee: No.

BZ 548  Theory of Population and Evolutionary Ecology  Credits: 4 (3-3-0)
Course Description: Principles and methods for building, analyzing, and interpreting mathematical models of ecological and evolutionary problems in biology; research module.
Prerequisite: MATH 155 or MATH 160.
Registration Information: Must register for lecture and laboratory. Credit allowed for only one of the following: BZ 548, BZ 348, MATH 348.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 555  Reproductive Biology of Higher Plants  Credits: 3 (3-0-0)
Course Description: Reproductive processes influencing evolution in higher plant groups.
Prerequisite: (BZ 310 or LIFE 210) and (BZ 350 or LIFE 201A or LIFE 201B or SOCR 330).
Term Offered: Spring (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 560  Teaching and Communicating Science  Credits: 3 (3-0-0)
Course Description: Nature of science, scientific reasoning, scientific argumentation, communication theories, and instructional strategies are explored. Develop science argumentation and communication skills in undergraduate courses and in informal settings. Create materials for a professional portfolio.
Prerequisite: (STAT 201 or STAT 204 or STAT 301 or STAT 307 or STAT 315) and (BZ 220 or LIFE 320) and (BZ 350 or LIFE 203 or SOCR 330).
Registration Information: Intended for students in a life science program. Credit allowed for only one of the following: BZ 560, BZ 670 or BZ 680A1.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 565  Next Generation Sequencing Platform/Libraries  Credit: 1 (0-2-0)
Also Offered As: MIP 565.
Course Description: Theoretical and experimental aspects of next generation sequencing experiments with a focus on the Illumina platform. Students will create and sequence metagenomic and 16S rDNA libraries from soil samples and unknown bacterial cultures.
Prerequisite: None.
Restriction: Must be a Graduate.
Registration Information: Graduate standing. This is a partial semester course. Credit allowed for only one of the following: BZ 565, CM 581A2, or MIP 565.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 568  Sustaining River Ecosystems in Changing World  Credits: 3 (3-0-0)
Also Offered As: FW 568.
Course Description: Applying the concepts and principles of freshwater ecosystem structure and function to develop a multidisciplinary and integrated understanding of the approaches and methods for restoring and sustainably managing these systems in the face of increasing human demands and rapid climate change.
Prerequisite: None.
Restriction: 
Registration Information: Senior standing. Credit allowed for only one of the following: BZ 568, BZ 680A2, FW 568, and FW 680A2.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 570  Molecular Aspects of Plant Development  Credits: 3 (3-0-0)
Course Description: Various aspects of plant development at the molecular level.
Prerequisite: BC 463 or BZ 350 or MIP 450 or SOCR 330.
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 572  Phytoremediation  Credits: 3 (3-0-0)
Course Description: Environmental cleanup using plants.
Prerequisite: BZ 120 or LIFE 103.
Term Offered: Fall (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 575  Molecular and Genomic Evolution  Credits: 3 (3-0-0)
Also Offered As: BSPM 575.
Course Description: Molecular, biological mechanisms of evolutionary change: mutation; selection; gene expression/regulation; changes in whole-genome architecture.
Prerequisite: BZ 220 and BZ 350.
Registration Information: Credit not allowed for both BZ 575 and BSPM 575.
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 580A1  Molecular and Genomic Evolution  Credits: 3 (3-0-0)
Also Offered As: BSPM 575.
Course Description: Molecular, biological mechanisms of evolutionary change: mutation; selection; gene expression/regulation; changes in whole-genome architecture.
Prerequisite: BZ 220 and BZ 350.
Registration Information: Credit not allowed for both BZ 575 and BSPM 575.
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 580A2  Molecular and Genomic Evolution  Credits: 3 (3-0-0)
Also Offered As: BSPM 575.
Course Description: Molecular, biological mechanisms of evolutionary change: mutation; selection; gene expression/regulation; changes in whole-genome architecture.
Prerequisite: BZ 220 and BZ 350.
Registration Information: Credit not allowed for both BZ 575 and BSPM 575.
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.
BZ 576  Genetics of Model Organisms  Credits: 4 (3-0-1)
Also Offered As: BZ 476.
Course Description: Advanced topics in model genetic systems including molecular and developmental genetics.
Prerequisite: BZ 350 or LIFE 201A or LIFE 201B or SOCR 330.
Registration Information: Junior standing. Credit not allowed for both BZ 576 and BZ 476.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 577  Computer Analysis in Population Genetics  Credits: 2 (0-4-0)
Also Offered As: MIP 577.
Course Description: Computational and statistical techniques and practical exercises in discrete and quantitative genetics.
Prerequisite: BZ 578, may be taken concurrently or MIP 578, may be taken concurrently.
Registration Information: Credit not allowed for both BZ 577 and MIP 577.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 578  Genetics of Natural Populations  Credits: 4 (3-0-1)
Also Offered As: MIP 578.
Course Description: Theoretical and empirical aspects of the genetics of natural populations; current molecular techniques and statistical analysis.
Prerequisite: (BZ 350 or LIFE 201A or LIFE 201B or SOCR 330) and (STAT 201 or STAT 301 or STAT 307 or ERHS 307).
Registration Information: Must register for lecture and recitation. Credit not allowed for both BZ 578 and MIP 578.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 584  Supervised College Teaching  Credits: Var[1-3] (0-0-0)
Course Description: Prerequisite: None.
Registration Information: Maximum of 6 credits allowed in course.
Term Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 587A  Internship: General  Credits: Var[1-6] (0-0-0)
Course Description: Prerequisite: None.
Registration Information: Written consent of instructor.
Term Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 587B  Internship: Herbarium  Credits: Var[1-6] (0-0-0)
Course Description: Prerequisite: None.
Registration Information: Written consent of instructor.
Term Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 594  Independent Study  Credits: Var[1-3] (0-0-0)
Course Description: Prerequisite: None.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 642  Plant Metabolism  Credits: 3 (3-0-0)
Course Description: Biosyntheses and transformations of important plant metabolites.
Prerequisite: BC 351 and BZ 440.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 692A  Seminar: Behavior  Credits: Var[1-3] (0-0-0)
Course Description: Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 692C  Seminar: Ecology  Credits: Var[1-3] (0-0-0)
Course Description: Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 692D  Seminar: Genetics  Credits: Var[1-3] (0-0-0)
Course Description: Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 692E  Seminar: Ornithology  Credits: Var[1-3] (0-0-0)
Course Description: Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 692G  Seminar: Evolution  Credits: Var[1-3] (0-0-0)
Course Description: Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 692H  Seminar: Departmental  Credits: Var[1-3] (0-0-0)
Course Description: Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.
BZ 695  Independent Study  Credits: Var[1-3] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 698  Research  Credits: Var[1-18] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 699  Thesis  Credits: Var[1-18] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 784  Supervised College Teaching  Credits: Var[1-3] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 6 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 792  Seminar  Credit: 1 (0-0-1)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 795  Independent Study  Credits: Var[1-3] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 798  Research  Credits: Var[1-18] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

BZ 799  Dissertation  Credits: Var[1-18] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.