Department of Biology

Office in Anatomy–Zoology Building, Room E106
(970) 491-7011
biology.colostate.edu (http://www.biology.colostate.edu)

Professor Michael F. Antolin, Chair

Undergraduate
Majors
• Major in Biological Science
  • Biological Science Concentration
  • Botany Concentration
• Major in Zoology

Minors
• Minor in Botany
• Minor in Zoology

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

Master Programs
• Master of Science in Botany, Plan A*
• Master of Science in Botany, Plan B*
• Master of Science in Zoology, Plan A*
• Master of Science in Zoology, Plan B*

Ph.D.
• Ph.D. in Botany*
• Ph.D. in Zoology*

* Please see department for program of study.

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. 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.
Additional Information: Biological & Physical Sciences 3A, Natural & Physical Sciences w/o lab (GT-SC2).

BZ 110 Principles of Animal Biology
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.
Additional Information: Biological & Physical Sciences 3A, Natural & Physical Sciences w/o lab (GT-SC2).
BZ 110 Animal Biology Laboratory (GT-SC1) Credit: 1 (0-3-0)
Course Description: Laboratory exercises demonstrating major features of animal biology and major phyla of animals.
Prerequisite: BZ 110. May be taken concurrently.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.
Additional Information: None.

BZ 212 Animal Biology-Invertebrates Credits: 4 (3-3-0)
Course Description: General biology of invertebrates; their characteristics, classification, and adaptations.
Prerequisites: LIFE 103 or BZ 110 and BZ 111.
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall. Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 214 Animal Biology-Vertebrates Credits: 4 (3-3-0)
Course Description: General biology of vertebrates; their characteristics, classification, and adaptations.
Prerequisites: BZ 110 or LIFE 103.
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall. Spring.
Grade Mode: Traditional.
Special Course Fee: No.

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.
Term Offered: Fall, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 296 Group Study—Biology Credits: Var[1-3]
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.
Prerequisites: BZ 111 and BZ 110 or LIFE 103.
Terms Offered: Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 301 Animal Behavior Laboratory Credits: 2 (0-4-0)
Course Description: Laboratory experiments in animal behavior; demonstrations and independent investigations.
Prerequisite: BZ 300, may be taken concurrently.
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 302 Poisonous Plants Credits: 3 (2-2-0)
Course Description: Identification and toxic properties of certain plants; animal reactions to more important ones.
Prerequisite: BZ 120 or LIFE 103.
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 303 Cell Biology Credits: 4 (3-3-0)
Course Description: Structure and function of cells emphasizing molecular mechanisms. Communication, metabolism, motility, genetics, growth, and reproduction.
Prerequisites: BZ 110 or BZ 120 or LIFE 103 and (CHEM 245 with a minimum grade of C or CHEM 341 with a minimum grade of C).
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: Yes.

BZ 304 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.
Term Offered: Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 305 Aquatic Vascular Plants Credits: 3 (1-4-0)
Course Description: Taxonomic relationships and identification of aquatic vascular plants.
Prerequisite: BZ 223 or BZ 325.
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 306 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.
BZ 329 Herpetology Credits: 3 (2-2-0)
Course Description: Biology of amphibians and reptiles.
Prerequisite: LIFE 103.
Registration Information: Must register for lecture and laboratory.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 330 Mammalogy Credits: 3 (2-2-0)
Course Description: Evolution, classification, and biology of mammals; practice in identifying and preparing specimens.
Prerequisites: BZ 111 and BZ 110 or LIFE 103.
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 331 Developmental Plant Anatomy Credits: 4 (2-4-0)
Course Description: Structure of plant cells, tissues, and organs as they develop.
Prerequisite: BZ 120 or LIFE 103.
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 332 Introductory Phycology Credits: 4 (3-2-0)
Course Description: Evolution, diversity, ecology and global impact of algae.
Prerequisites: (BZ 120 or LIFE 102) and (BZ 220).
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall (even years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 333 Introductory Mycology Credits: 4 (2-4-0)
Course Description: Groups of fungi including classification, structure, morphogenesis, phylogeny, and genetics and reproduction.
Prerequisite: BZ 120 or LIFE 103.
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 335 Ornithology Credits: 3 (2-3-0)
Course Description: Biology of birds, especially behavior, ecology, and identification in the laboratory and field.
Prerequisites: 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 338 Comparative Morphology of Vascular Plants Credits: 4 (2-4-0)
Course Description: Origin, evolution, structure, and reproduction of the vascular plants, including comparative study of organs occurring in each group.
Prerequisite: BZ 120 or LIFE 103.
Registration Information: Must register for lecture and laboratory.
Term Offered: Spring (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

BZ 346 Population and Evolutionary Genetics Credits: 3 (3-0-0)
Course Description: Evolutionary theories and history; heredity mechanisms that are basis for variation, evolution, and biological communication between generations.
Prerequisites: (BZ 220) and (MATH 155) and (STAT 301 or STAT 307 or ERHS 307).
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

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

BZ 349 Tropical Ecology and Evolution Credits: 3 (3-0-0)
Course Description: Broad introduction to terrestrial and aquatic tropical biodiversity and the ecological and evolutionary processes that generate and maintain it.
Prerequisite: BZ 220.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 350 Molecular and General Genetics Credits: 4 (3-0-1)
Course Description: Mendelian, molecular, and population genetics emphasizing the molecular basis of genetics.
Prerequisites: (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 laboratory. Primarily for students in biological sciences. Sections may be offered: Online.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

BZ 353 Global Change Ecology, Impacts and Mitigation Credits: 3 (3-0-0)
Also Offered As: NR 353.
Course Description: Ecological impacts of human-induced global change, and the strategies that can are being used to adapt to and mitigate these impacts.
Prerequisite: LIFE 320 or LIFE 220 or LAND 220.
Registration Information: Credit not allowed for both BZ 353 and NR 353.
Term Offered: Spring.
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(s)</th>
<th>Term Offered</th>
<th>Grade Mode</th>
<th>Special Course Fee</th>
<th>Registration Information</th>
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</thead>
<tbody>
<tr>
<td>BZ 360</td>
<td>Bioinformatics and Genomics</td>
<td>3</td>
<td>Genomics, bioinformatics, and basic computer programming for biologists.</td>
<td>BZ 110 or BZ 120 or LIFE 102.</td>
<td>Traditional</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
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<tr>
<td>BZ 384</td>
<td>Supervised College Teaching</td>
<td>Var[1-5]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
<td>None.</td>
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<tr>
<td>BZ 401</td>
<td>Comparative Animal Physiology</td>
<td>3</td>
<td>Physiological mechanisms of digestion, metabolism, osmoregulation, excretion, circulation, and respiration in vertebrate and invertebrate animals.</td>
<td>BZ 214.</td>
<td>Spring</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
</tr>
<tr>
<td>BZ 402</td>
<td>Molecular Cytogenics</td>
<td>4</td>
<td>Structure, function, and behavior of chromosomes during interphase, mitosis, and meiosis.</td>
<td>BZ 310, may be taken concurrently or LIFE 210, may be taken concurrently and BZ 350, may be taken concurrently or LiFE 201A, may be taken concurrently or LiFE 201B, may be taken concurrently or SOCR 330, may be taken concurrently.</td>
<td>Fall (odd years)</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
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<tr>
<td>BZ 403</td>
<td>Comparative Endocrinology</td>
<td>3</td>
<td>Comparison of endocrine molecules, responses, and control mechanisms in vertebrates and invertebrates emphasizing molecular aspects.</td>
<td>BZ 310.</td>
<td>Fall (even years)</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
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<tr>
<td>BZ 415</td>
<td>Marine Biology</td>
<td>4</td>
<td>Marine organisms, habitats, and communities.</td>
<td>BC 351 or BC 401 and (BZ 214).</td>
<td>Spring</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
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<tr>
<td>BZ 418</td>
<td>Ecology of Infectious Diseases</td>
<td>4</td>
<td>Ecological perspectives of infectious disease outbreaks in wildlife and human populations.</td>
<td>LIFE 320.</td>
<td>Spring</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
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<tr>
<td>BZ 420</td>
<td>Evolutionary Medicine</td>
<td>3</td>
<td>Integration of evolutionary biology with behavior, genetics, and ecology to understand health and disease.</td>
<td>BZ 220.</td>
<td>Spring</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
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<tr>
<td>BZ 424</td>
<td>Principles of Systematic Zoology</td>
<td>3</td>
<td>Principles and methods of classification, zoological nomenclature, taxonomic decisions regarding species and higher categories.</td>
<td>BZ 111 and BZ 110 or LIFE 103.</td>
<td>Spring (even years)</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
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<tr>
<td>BZ 425</td>
<td>Molecular Ecology</td>
<td>3</td>
<td>Introduction to molecular genetic markers for questions in ecology, evolution, behavior, and conservation.</td>
<td>(BZ 220 and BZ 350) and (STAT 301 or STAT 307).</td>
<td>Spring (even years)</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
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<tr>
<td>BZ 430</td>
<td>Animal Behavior and Conservation</td>
<td>4</td>
<td>The interface between animal behavior and conservation biology, exploring how behavioral tools can be applied to conservation problems.</td>
<td>BZ 110 and BZ 111 or LIFE 103 and (BZ 303).</td>
<td>Spring (odd years)</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
</tr>
<tr>
<td>BZ 433</td>
<td>Behavioral Genetics</td>
<td>4</td>
<td>An integrative view of genetic basis of animal behavior, with emphasis on complex behaviors and societal implications of genetics research.</td>
<td>BZ 310.</td>
<td>Fall</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
</tr>
<tr>
<td>BZ 440</td>
<td>Plant Physiology</td>
<td>3</td>
<td>Functions and activities of plants.</td>
<td>BZ 120 or LIFE 103.</td>
<td>Spring</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
</tr>
<tr>
<td>BZ 441</td>
<td>Plant Physiology Laboratory</td>
<td>2</td>
<td>Laboratory applications of plant physiology principles.</td>
<td>BZ 440, may be taken concurrently.</td>
<td>Spring</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
</tr>
<tr>
<td>BZ 421</td>
<td>Evolutionary Medicine</td>
<td>3</td>
<td>Integration of evolutionary biology with behavior, genetics, and ecology to understand health and disease.</td>
<td>BZ 220.</td>
<td>Spring</td>
<td>Traditional</td>
<td>No</td>
<td>None.</td>
</tr>
</tbody>
</table>
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.
Prerequisites: BZ 110 and BZ 111 or LIFE 103.
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 460  Genetiology  Credits: 4 (3-0-1)
Course Description: Evolution of DNA, RNA, and proteins; use of genomic data to infer evolutionary history and processes.
Prerequisites: 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.
Prerequisites: (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.
Prerequisites: (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 470  Stream Biology and Ecology Laboratory  Credits: 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: 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 (even years).
Grade Mode: Traditional.
Special Course Fee: Yes.

BZ 474  Limnology  Credits: 3 (2-2-0)
Course Description: Biology, chemistry, and physics of lakes including limnological methods.
Prerequisite: LIFE 320 or LAND 220 or LIFE 220.
Registration Information: Must register for lecture and laboratory. Required field trips.
Term Offered: Fall (odd years).
Grade Mode: Traditional.
Special Course Fee: Yes.

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 487  Internship  Credits: Var[1-12]
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: Traditional.
Special Course Fee: No.

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

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

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

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

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

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

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

BZ 496 Group Study—Biology Credits: Var[1-3]
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]
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.
Prerequisites: (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.
Prerequisites: (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 Molecular Ecology Credits: 4 (3-0-1)
Course Description: Molecular genetic markers for questions in ecology, evolution, behavior, and conservation.
Prerequisites: (BZ 220 and BZ 350) and (STAT 301 or STAT 307).
Registration Information: Must register for lecture and recitation. Credit not allowed for both BZ 525 and BZ 425.
Term Offered: Fall (even 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.
Prerequisites: (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.  
Prerequisites:  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.  
Prerequisites:  (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 561  Landscape Ecology  Credits: 3 (3-0-0)  
Course Description: Concepts, methods, and models for examining spatial patterns and processes of natural and managed landscapes and their effects on ecological dynamics.  
Prerequisites: (LIFE 320) and (STAT 301 or STAT 307).  
Registration Information:  Written consent of instructor.  
Term Offered:  Fall.  
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)  
Also Offered As:  BSPM 575.  
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.  
Prerequisites:  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.
Prerequisites: (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]
Course Description: 
Prerequisite: None.
Registration Information: Maximum of 6 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

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

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

BZ 594  Independent Study  Credits: Var[1-3]
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.
Prerequisites: BC 351 and BZ 440.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall (even years).
Grade Mode: Traditional.
Special Course Fee: No.

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

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

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

BZ 692F  Seminar: Departmental  Credits: Var[1-3]
Course Description: 
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

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

BZ 696  Research  Credits: Var[1-18]
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]
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]
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]
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]
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]
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.