Biology (BIOL)

Courses

BIOL 111. Concepts of Biology. 3 Credits.
Intended for non-science majors seeking general knowledge and cultural appreciation of contemporary biology. F,S,SS.

BIOL 111L. Concepts of Biology Laboratory. 1 Credit.
A basic biology laboratory to complement BIOL 111. Prerequisite or Corequisite: BIOL 111. F,S,SS.

BIOL 120. Orientation to the Biology Major. 1 Credit.
An introduction to careers available to students majoring in Biology and the coursework and other experiences valuable in pursuing those careers. S/U grading. F.

BIOL 121. Introduction to Fisheries and Wildlife Biology. 1 Credit.
This seminar will introduce Fisheries Wildlife Biology Majors to their program curriculum and profession. Topics will include the history and future directions of the Fish Wildlife Profession, specialties within the profession, coursework and training necessary for professional preparation, and potential opportunities for field experience during undergraduate education. Students will also meet fisheries and Wildlife Biologists working for state or federal agencies or non-governmental organizations to learn what they do and about opportunities for employment. F.

BIOL 150. General Biology I. 3 Credits.
Basic concepts of biology with emphasis on the process of science, metabolism, cell biology, plant and animal form and function, and physiology. Broadly designed to satisfy the needs of those pursuing biological and preprofessional curricula. F.

BIOL 150L. General Biology I Laboratory. 1 Credit.
A contemporary biology laboratory to complement BIOL 150, 151. Prerequisite or Corequisite: BIOL 150. F.

BIOL 151. General Biology II. 3 Credits.
Basic concepts of biology with emphasis on the process of science, genetics, molecular biology, evolution, biodiversity, and ecology. Broadly designed to satisfy the needs of those pursuing biological and preprofessional curricula. S.

BIOL 151L. General Biology II Laboratory. 1 Credit.
A contemporary biology laboratory to complement BIOL 150, 151. S.

BIOL 312. Evolution. 3 Credits.
A study of the processes that have led from the origin of life to the diverse patterns and forms of life observable today. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or an equivalent approved by the department. S.

BIOL 312L. Evolution Laboratory. 1 Credit.
This course will focus on the application of evolutionary concepts by examining the evolution of organisms and genes. Students will use genetic data and relevant software to construct phylogenies and create tree of life pages. Prerequisite: BIOL 150 and BIOL 151. Corequisite: BIOL 312. S.

BIOL 315. Genetics. 3 Credits.
An introduction to genetics, with emphasis on classical genetic analysis and the biochemistry of gene transmission, expression and regulation. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or an equivalent approved by the department. F.

BIOL 315R. Genetics Recitation. 1 Credit.
A recitation to aid students enrolled in BIOL 315: Genetics. The class is designed to review both "big idea" concepts from lecture as well as to work through genetics problems. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L. Corequisite: BIOL 315. On demand.

BIOL 320. Forensic Biology. 3 Credits.
Forensic biology is the application of biological sciences to matters of law. This course covers the concept of biological evidence and focuses on human identification using the serological and genetic methods. This is one of the courses that the American Academy of Forensic Sciences recommends for forensic scientists. Prerequisite: BIOL 150 and BIOL 151. S.

BIOL 332. General Ecology. 3 Credits.
An introduction to ecology. Covers the relationship of individuals, populations, communities and ecosystems to their biotic and abiotic environments. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or an equivalent approved by the department. F.

BIOL 332L. Gen Ecology Lab. 1 Credit.
Field projects and laboratory exercises to complement BIOL 332. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L. Prerequisite or Corequisite: BIOL 332. F.

BIOL 333. Population Biology. 3 Credits.
Principles of population genetics, population ecology, and evolution in plants and animals. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L. S.

BIOL 336. Systematic Botany. 4 Credits.
Morphology, evolution, and classification of vascular plants with emphasis on the flora of the Great Plains. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or permission of instructor. F, even years.

BIOL 338. Animal Behavior. 2 Credits.
Studies in animal social behavior. The influences of environmental factors on behavior is emphasized. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, BIOL 151L or an equivalent approved by the department. S, even years.

BIOL 341. Cell Biology. 3 Credits.
Description of processes common to life at the cellular level including: biochemical and structural organization, membrane function, motility, signal transduction, growth, division and genetic regulation of the cell. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, BIOL 151L. Prerequisite or Corequisite: CHEM 122. S.

BIOL 341L. Cell Biol Lab. 1 Credit.
Laboratory investigation utilizing techniques to study life at the cellular level including chemical composition and characterization, enzyme kinetics, metabolism and microscopy. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, BIOL 151L. Corequisite: BIOL 341, CHEM 122. S.

BIOL 350. Plant Ecology. 3 Credits.
Structure and function of plants as they relate to the maintenance of plant populations and communities. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or permission of instructor. S, even years.

BIOL 360. Soil Ecology. 3 Credits.
This course will survey the abundance, distribution, and identity of biota that are present in soils, their ecological functions, methods of analysis, contemporary theories about soil ecology, and practical methods of promoting soil health in natural and managed systems. Prerequisite: BIOL 150 and BIOL 151, or consent of instructor. S, odd years.

BIOL 363. Entomology. 4 Credits.
Structure, functions, life history, classification, habits and distribution of insects. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or an equivalent approved by the department. F, even years.

BIOL 364. Parasitology. 2 Credits.
Classification, structure, functions, and life-cycles of parasites having importance to human, wildlife and veterinary health. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L. F, odd years.

BIOL 364L. Parasitology Laboratory. 2 Credits.
A basic parasitology laboratory to complement BIOL 364. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L. Prerequisite or Corequisite: BIOL 364. F, odd years.

BIOL 369. Histology. 2 Credits.
Microscopical anatomy of vertebrate tissues and organs, with emphasis on man and other mammals. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or an equivalent approved by the department. S.

BIOL 369L. Histology Lab. 2 Credits.
A basic histology laboratory to complement BIOL 369. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or an equivalent approved by the department. Prerequisite or Corequisite: BIOL 369. S.

BIOL 376. Animal Biology. 3 Credits.
Evolution, morpho-anatomy, development, reproduction and other aspects of the natural history of invertebrate and vertebrate animals. Prerequisite: BIOL 151 or BIOL 111. S.

BIOL 376L. Animal Biology Laboratory. 1 Credit.
Observation of live or fixed animals belonging to various invertebrate and vertebrate groups with emphasis on their adaptations to environment/life styles. Laboratory projects will include some of the classical and modern techniques used in systematic studies. Counts as an upper-division laboratory course. Prerequisite or Corequisite: BIOL 376. S.

BIOL 378. Developmental Biology. 3 Credits.
An overview of general stages and mechanisms of development, experimental approaches used to study developmental processes, and genetic and environmental influences that govern development. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, BIOL 151L, BIOL 315 and BIOL 341. F.

BIOL 378L. Developmental Biology Lab. 1 Credit.
Developmental Biology Lab is a one-credit class designed to complement the Developmental Biology Course (BI0378). In the laboratory students will be learning and applying a series of analytical and technical skills using a hands-on approach to fundamental developmental concepts. Students should come away from the course with a set of observational and technical skills as well as practical training in clear and accurate scientific documentation. Emphasis will be placed on the scientific method, data analysis, and effective written communication of results. Counts as an upper-division laboratory course. Prerequisite or Corequisite: BIOL 378. On demand.

BIOL 380. Disease Biology. 3 Credits.
A survey of the nature and etiology of infectious and parasitic disease in animals, pathogenicity and ways of transmission of most important disease agents and effect of disease on individual organisms and populations. Particular attention is given to emerging zoonotic diseases transmittable between animals and humans, and between wild and domestic animals. Prerequisite: BIOL 150 and BIOL 151. S, odd years.

BIOL 390. Endocrinology. 3 Credits.
This course focuses on the endocrine system of vertebrates. Students will learn how endocrine glands synthesize and secrete hormones and how hormones regulate gene expression, cell proliferation, cell differentiation, and cell physiology. Students build on these basic ideas to understand endocrine control of important developmental and physiological processes. Examples of positive and negative feedback loops will be presented throughout the semester. This reinforces the idea that endocrine glands and hormones work together as an integrated system to maintain homeostasis and produce complex biological cycles. Common endocrine disorders like diabetes mellitus, obesity, dyslipidemia (abnormal cholesterol levels), osteoporosis, erectile dysfunction, and polycystic ovary syndrome will be discussed. In summary, hormones produced by endocrine glands are required for normal development, survival, and reproduction. F.

BIOL 396. Fisheries and Wildlife Biology Pre-Internship Seminar. 1 Credit.
The goal of this course is for students to identify internship opportunities to fulfill the required Cooperative Education internship requirement in the fisheries and wildlife biology major and to learn the necessary skills for successfully obtaining an internship and positions in the profession. Prerequisite or Corequisite: BIOL 121. F.

BIOL 397. Cooperative Education. 1-8 Credits.
A practical work experience with an employer under the direction of a supervisory faculty member. A written final report will be required and will be used as a basis for evaluation. Prerequisite: Sophomore standing and approval by the department chair and acceptance by a supervisory faculty member. Repeatable to 24.00 credits. S/U grading. F,S,SS.

BIOL 410. Molecular Biology Techniques. 4 Credits.
Applications of DNA and RNA analysis and recombinant DNA technologies, emphasizing practical experience in the laboratory. This class will meet twice a week for 50 minutes in the classroom, and students will be expected to work approximately 4-6 hours a week in the lab during open lab times. Counts as an upper-division laboratory course. Prerequisite: BIOL 315 is recommended. S.

BIOL 415. Genomics. 4 Credits.
Genomics describes the determination of the complete nucleotide sequence of an organism and subsequent analyses to decode the structural and functional information of all genes and regulatory sequences in the genome. This four-credit course will consist of lectures, computer lab sessions, in-class exercises, take-home assignments, student presentations, and discussion of research articles. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, BIOL 151L and BIOL 315. S.

BIOL 416. Ecological Genomics. 3 Credits.
The objective of this course is to introduce students to the theories, vocabulary, and techniques used in the field of Ecological Genomics, which are drawn from ecology, genomics, evolution, and population genetics. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L. On demand.

BIOL 418. Systems Biology. 3 Credits.
Living organisms are complex systems composed of numerous interacting parts. Systems biology seeks to understand biological phenomena by integrating the coordinated action of many components of a system using a multidisciplinary approach. This class introduces basic concepts and methods in systems biology with an emphasis on biological networks, gene regulation, intracellular signaling, development and pattern formation, metabolism, and the analysis of high-throughput "omics" data. Computer simulations are used heavily to gain deeper insight into system function. Counts as an upper-division laboratory course. Prerequisite: BIOL 315, BIOL 341, and MATH 103. F, even years.

BIOL 420. Neuroscience. 3 Credits.
A course covering fundamental areas of neuroscience including neuroanatomy, cell and molecular neurobiology, sensory systems, motor systems, regulatory systems, nervous system development, and cognitive and behavioral neuroscience. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, BIOL 151L, and junior standing. F.

BIOL 425. Ichthyology. 3 Credits.
Structure and function, anatomy, physiology, behavior, classification, distribution and ecologic aspects of fishes. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or an equivalent approved by the department. S, even years.

BIOL 426. Birds & Mammals. 4 Credits.
Birds and Mammals is designed to familiarize students with avian and mammalian biology, including anatomy and physiology, behavior, ecology, evolution and conservation. Lab exercises will be integrated with lecture to emphasize taxonomy and identification. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L. On demand.

BIOL 427. Ornithology. 4 Credits.
Ornithology is designed to familiarize students with avian biology, including origins of birds (systematics and evolution), form and function, behavior, communication, environmental/habitat requirements, life history traits, and population dynamics and conservation. The lab exercises will be integrated with lecture to emphasize taxonomy and identification. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L. S, even years.

BIOL 428. Mammalogy. 4 Credits.
Mammalogy is designed to familiarize students with mammal biology, including origins of mammals (systematics and evolution), form and function, behavior, communication, environmental/habitat requirements, life history traits, and population dynamics and conservation. Lab exercises will be integrated with lecture to emphasize taxonomy and identification. S, odd years.

BIOL 430. Human Dimensions of Wildlife and Fisheries. 3 Credits.
This course explores interactions among humans and fisheries and wildlife resources, with a focus on principles important for understanding and addressing wildlife management. Topics will include public attitudes, expectations and diverse values of fisheries and wildlife resources; stakeholder engagement; public relations; governance; philosophy and ethics of resource use and management; and human dimensions research methodology. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L. S, odd years.

BIOL 431. Wildlife Management. 4 Credits.
Theory and methods of management of wildlife populations. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or an equivalent approved by the department. F, odd years.

BIOL 432. Techniques in Wildlife Population Assessment. 4 Credits.
Techniques in Wildlife Population Assessment is a course designed to teach wildlife biology students the techniques used to assess wildlife populations for conservation and management. Students learn the appropriate situations to use the techniques, how to properly conduct the procedures, how to collect data from the use of these techniques, and how to report the findings to a variety of audiences. The structure of the course is designed to teach students proper research methodology so that they not only know how and when to use the techniques, but also how they can apply their findings to make appropriate management recommendations for wildlife conservation and management under a variety of settings or conditions. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L. F, even years.

BIOL 433. Aquatic Ecology. 3 Credits.
The goal of this course is to provide students with an understanding of the physical, chemical, and biological components of aquatic ecosystems, encompassing both freshwater and marine systems. Topics include nutrient cycling, community dynamics, ecosystem functioning, and human impacts on aquatic systems. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or an equivalent approved by the department. F, odd years.

BIOL 435. Large Mammal Ecology and Management. 3 Credits.
A course covering details of the population ecology, specialized management approaches and techniques, and conservation of large-bodied mammals in North America and worldwide. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L. Corequisite: BIOL 332 and BIOL 332L. F, odd years.

BIOL 438. Fisheries Management. 3 Credits.
Concepts and approaches to the management of freshwater fisheries. Course will include discussion of life histories and requirements of important regional sport fishes. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or instructor permission. F, even years.

BIOL 439. Conservation Biology. 3 Credits.
A course that integrates information from the disciplines of ecology, genetics, biogeography, economics, environmental policy, and ethics towards understanding how to maintain and restore biological diversity. F, odd years.

BIOL 442. Physiology of Organs and Systems. 3 Credits.
Study of the physiology of organs and organ systems in vertebrates. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, BIOL 151L, and Junior or Senior standing or an equivalent approved by the department. F.

BIOL 442L. Physiology of Organs and Systems Laboratory. 1 Credit.
A physiology laboratory to complement BIOL 442. Counts as an upper-division laboratory course. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or and equivalent approved by the department. Prerequisite or Corequisite: BIOL 442. F.

BIOL 450. Molecular Genetics. 2 Credits.
Topics will include basic molecular genetic mechanisms, recombinant DNA technology, the organization and function of the cell nucleus, and the molecular control of gene expression. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, BIOL 151L, and BIOL 315 or and equivalent approved by the department. On demand.

BIOL 460. Molecular Biology of the Cell. 3 Credits.
A study of the structure and organization of the cell with a special emphasis on genetic regulation of the cell division cycle, the genetic basis of cancer, and the role of genes in the immune system. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, BIOL 151L, and BIOL 315 or and equivalent approved by the department. On demand.

BIOL 470. Biostatistics. 4 Credits.
Analysis of biological data. Covers descriptive statistics, inferential statistics (e.g., t-tests, goodness-of-fit tests, regression, ANOVA and non-parametric tests), and interpreting and presenting statistical results. S.

BIOL 480. Senior Capstone Seminar. 3 Credits.
Key aspects of scientific inquiry and communication are investigated and assessed. Students will participate in discussions of relevant current issues in biology and will develop an independent research project. This course provides an opportunity for students to integrate and apply knowledge and skills obtained in biology. Students must take course within 3 semesters of graduation. Prerequisite: Senior status in biological science or permission of instructor. F,S.

BIOL 481. Fisheries & Wildlife Senior Capstone. 3 Credits.
Key aspects of scientific inquiry and communication are investigated and assessed. Students will participate in discussions of relevant current issues in fisheries and wildlife biology and will complete an independent research project. The course provides an opportunity for students to integrate and apply knowledge and skills acquired in fisheries and wildlife biology. Prerequisite: BIOL 312, BIOL 315, BIOL 332 and senior status in Fisheries and Wildlife Biology or permission of the instructor. S.

BIOL 489. Senior Honors Thesis. 1-15 Credits.
Supervised independent study culminating in a thesis. Prerequisite: Consent of the department and approval of the honors committee. Repeatable to 15.00 credits. F,S.

BIOL 491. Seminar. 1 Credit.
Discussion of selected topics in advanced biology, a different topic each semester. Prerequisite: Major or minor in biology. Repeatable to 4.00 credits. On demand.

BIOL 492. Research. 1-4 Credits.
Research conducted under the supervision of a faculty member. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, BIOL 151L, and consent of instructor. Repeatable to 16.00 credits. F,S,SS.

BIOL 493. Instructional Experience in Biology. 1-4 Credits.
Students will receive training and practical experiences in providing instruction at the collegiate level. Such experiences may include serving as an undergraduate teaching assistant or tutor for courses with a faculty mentor. Prerequisite: Sophomore, junior or senior status, "A" in course they are serving, minimum overall GPA of 3.0 or higher, and permission of instructor. F,S.

BIOL 494. Directed Studies. 1-4 Credits.
Designed to meet the needs of individual students in the areas of faculty specialization. Prerequisite: Consent of instructor. Repeatable to 9.00 credits. F,S.

BIOL 497. Internship. 0-4 Credits.
Supervised experience consistent with a student's career objectives. Requires formal application to the Biology department for approval. Credit for summer internships will be 1 credit for part time and 2 credits for full time. Prerequisite: Open to Biology majors only. F,S,SS.

BIOL 499. Special Topics. 1-4 Credits.
Important and current topics in biology not covered by other courses. Repeatable when topics vary. Prerequisite: BIOL 150, BIOL 150L, BIOL 151, and BIOL 151L or consent of instructor. Repeatable. On demand.

BIOL 503. Seminar. 1 Credit.
Discussion of selected topics in advanced biology, a different topic each semester. Repeatable to 6.00 credits.

BIOL 505. Biological Inquiry for Teachers. 3 Credits.
Intended for teachers planning to qualify to teach high school biology, or teachers looking to enrich their content knowledge in biology for professional development. Topics will include energy conversion, cell and molecular biology, genetics, physiology, evolution, ecology, and pedagogical issues. On demand.

BIOL 505L. Biological Inquiry for Teachers Laboratory. 2 Credits.
This hands-on lab course complements BIOL 505 and is intended for teachers planning to enrich their practical skills in biology for professional development. May not be used in Ph.D. or Master's programs. Prerequisite: Must be licensed k-12 teacher.

BIOL 506. Ecology for Teachers. 3 Credits.
Intended for teachers planning to qualify to teach high school biology, or teachers looking to enrich their content knowledge in biology for professional development. Topics will include physiological ecology, behavioral ecology, population ecology, community ecology, landscape ecology, geographical ecology, global ecology and pedagogical issues. On demand.

BIOL 506L. Ecology for Teachers Laboratory. 2 Credits.
This hands-on lab course complements BIOL 506 and is intended for teachers planning to enrich their practical skills in biology for professional development. May not be used in Ph.D. or Master's programs. Prerequisite: BIOL 505L and BIOL 505B.

BIOL 507. Cellular and Molecular Biology for Teachers. 3 Credits.
Intended for teachers planning to qualify to teach high school biology, or teachers looking to enrich their content knowledge in biology for professional development. Topics will include cell, molecular, developmental and evolutionary biology. On demand.

BIOL 507L. Cellular and Molecular Biology for Teachers Laboratory. 2 Credits.
This hand-on lab course complements BIOL 507 and is intended for teachers planning to enrich their practical skills in biology for professional development. May not be used in Ph.D. or Master's programs. Prerequisite: Must be licensed K-12 teacher.

BIOL 509. Scientific Writing. 2 Credits.
Writing is an essential part of the scientific enterprise. In this course, students will develop their scientific writing skill through readings and discussion on the nature of effective writing, and through critique of writing projects produced by each student. Course can be repeated up to 4 credits for different writing projects. Prerequisite: Consent of instructor. Repeatable to 4.00 credits. F.

BIOL 512. Advanced Evolutionary Analysis. 3 Credits.
This course will focus on methods that reconstruct evolutionary histories of populations, species and higher-level taxa. The course will also discuss the evolution of specialized traits using appropriate analyses. Prerequisite: Consent of instructor. On demand.

BIOL 533. Grassland Ecology. 3 Credits.
Phytogeography, environmental influences, and community dynamics of grassland ecosystems with emphasis on herbage production, ecosystem modeling, and ecological characteristics of major grass species. Prerequisite: BIOL 332 or an equivalent approved by the department. On demand.

BIOL 534. Quantitative Ecology. 3 Credits.
An introduction to the methods employed in the study of the ecology of natural populations/communities of plants and animals.

BIOL 535. Physiological Ecology. 3 Credits.
Critical evaluation and synthesis of selected theoretical topics in physiological ecology. Prerequisite: BIOL 442 or consent of instructor. On demand.

BIOL 536. Advanced Population Biology. 3 Credits.
In this course we will examine current thinking on a range of topics in population ecology, population genetics and the links between ecological and evolutionary dynamics. Students will build on background reading by developing their own models of some aspect of population biology (ecological and/or genetic). Prerequisite: Consent of instructor. S, even years.

BIOL 571. Research Design and Statistical Analysis. 3 Credits.
Topics in scientific inference, research design, and current approaches to statistical analysis of data in biology and other studies of the natural world. Practical data analysis using commonly available software. Prerequisite: An introductory course in statistics. F.

BIOL 572. Design of Biological Experiments. 1 Credit.
Topics in designing biological experiments including the role of experimentation, inference, sampling, replication, controls, and power analysis. Corequisite: BIOL 470 or consent of instructor. F.

BIOL 590. Special Topics. 1-4 Credits.
Important and current topics in biology not covered by other courses. Repeatable when topics vary. Examples include: Aquaculture, Big Game Biology, Biorhythms, Conservation Biology, Fire Ecology, Molecular Techniques, Plant-Animal Interactions, Sex Determination and Speciation. Prerequisite: Graduate status or upper division status with consent of instructor. Repeatable.

BIOL 592. Directed Studies. 1-4 Credits.
Designed to meet the needs of individual and small groups of students in areas of faculty specialization. May be repeated to a total of 12 credits. Repeatable to 12.00 credits.

BIOL 593. Advanced Topics in Plant Biology. 1-4 Credits.
Advanced topics in plant biology. Examples include: Plant Development, Plant Biochemistry, and Plant Genetics. Repeatable when topics vary. Prerequisite: Graduate status or upper division status with consent of instructor. Repeatable. On demand.

BIOL 594. Advanced Topics in Genetics. 1-4 Credits.
Advanced topics in genetics. Examples include: Biochemical Genetics, Cytogenetics, and Human Medical and Population Genetics. Repeatable when topics vary. Prerequisite: Graduate status or upper division status with consent of instructor. Repeatable. On demand.

BIOL 595. Advanced Topics in Fisheries, Wildlife, and Conservation. 1-4 Credits.
Advanced topics in fisheries, wildlife or conservation biology. Examples include: Natural Resource Policy, Waterfowl Biology and Management, and Wetland and Prairie Ecology. Repeatable when topics vary. Prerequisite: Graduate status or upper division status with consent of instructor. Repeatable. On demand.

BIOL 596. Advanced Topics in Parasitology. 1-4 Credits.
Advanced topics in parasitology. Examples include: Arthropod Borne Diseases, Helminthology, Disease Biology, and Medically Important Arthropods. Repeatable when topics vary. Prerequisite: Graduate status or upper division status with consent of instructor. Repeatable. On demand.

BIOL 597. Advanced Topics in Physiology and Development. 1-4 Credits.
Advanced topics in physiology and development. Examples include: Comparative Endocrinology, Vascular Development, Embrionic Physiology, and Neural Physiology. Repeatable when topics vary. Prerequisite: Graduate status or upper division status with consent of instructor. Repeatable. On demand.

BIOL 599. Research. 1-15 Credits.
Intended for students conducting original research in consultation with staff. Repeatable. S/U grading.

BIOL 996. Continuing Enrollment. 1-12 Credits.
Repeatable. S/U grading.

BIOL 997. Independent Study. 2 Credits.
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BIOL 998. Thesis. 1-9 Credits.
Repeatable to 9.00 credits.

BIOL 999. Dissertation. 1-15 Credits.
Repeatable to 15.00 credits.