

Integrative Biology (INB)

INB 208L Field Biology 2 Hours

Explore the principles and applications of ecology, and some of the experimental and descriptive methods of ecological investigations, using field projects, laboratory exercises, field trips, and computer simulation exercises.

INB 119S, 219S, 319S, 419S, 519S, 619S, 719S, 819S, 919S Topics in Integrative Biology 1-9 Hours

This course is used to record credit the student earns while enrolled at another institution in a program administered by the University's Study Abroad Office. Credit is recorded as assigned by the study abroad advisor in the Biology Instructional Office. University credit is awarded for work in an exchange program; it may be counted as coursework taken in residence. Transfer credit is awarded for work in an affiliated studies program.

INB 321G Principles of Computational Biology 3 Hours

Introduction to computational methods for the analysis of nucleic acid and protein sequences, with applications towards biological problems.

INB 321L Aquatic Entomology 3 Hours

Examine the taxonomy of aquatic insects, including the use of aquatic insects in biomonitoring.

INB 322 Structure, Physiology, and Reproduction of Seed Plants 3 Hours

Explore the principles of structure and functioning of higher plants with special attention to the dynamics of growth and development and reproduction.

INB 122L Structure, Physiology, and Reproduction of Seed Plants Laboratory 1 Hour

Observe the structure and reproduction in seed plants and employ experimental techniques that demonstrate physiological processes, especially processes of growth and development.

INB 323 Mathematical Modeling for Biology 3 Hours

Translate between qualitative hypotheses regarding biological processes and their more exact expression in the form of mathematical models.

Analyze these models to determine predicted biological behavior under those hypotheses.

INB 324 Survey of the Plant Kingdom 3 Hours

Survey the groups of living and fossil plants, comparing organization and reproduction to understand major shifts in the evolution of plant life.

INB 124L Survey of the Plant Kingdom Laboratory 1 Hour

Explore major plant groups emphasizing organization, reproduction, and evolution. Examine cultures, prepared and living material. Local field trips.

INB 129S, 229S, 329S, 429S, 529S, 629S, 729S, 829S, 929S Topics in Integrative Biology 1-9 Hours

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INB 137, 237, 337, 437 Topics in Biology 1-4 Hours

Examine recent developments and research methods in the biological sciences.

INB 137.1, 237.1, 337.1, 437.1 Human Medical and Population Genomics 1-4 Hours

Read and interpret the primary literature in human genomics. Learn and apply computational genomics tools, group projects, presentations, and the preparation of scientific manuscripts.

INB 137.2, 237.2, 337.2, 437.2 Quantitative and Population Genetics 1-4 Hours

Discuss critical reading of primary quantitative literature on the drivers of genetic variation and its mapping to trait variation, focusing on humans. Analyze central ideas in mathematical modeling and statistical analysis of human genetic variation and explore mutation and recombination, genetic drift, natural selection, analyses of gene-expression variation, population structure, genotype-phenotype stratification, and study designs for mapping genotype to phenotype.

INB 438L Animal Communication 4 Hours

Examine animal communication from a multidisciplinary perspective, with emphasis on quantitative analysis, sensory processing, and evolution of signals.

INB 440L Biology of Birds 4 Hours

Examine the anatomy, physiology, classification, and ecology of birds

INB 345E Endocrinology 3 Hours

Examine vertebrate endocrinology (primarily mammalian), with a focus on human pathophysiology.

INB 346 Human Biology 3 Hours

Introduction to human evolution, genetics, sexuality, senescence, and population growth.

INB 446L Human Microscopic and Gross Anatomy 4 Hours

Designed for students preparing for biomedical research and the health professions. Explore microscopic and gross anatomy of human tissues and organs, with an emphasis on structure function relationships.

Examine the effects of disease and aging in addition to normal human anatomy.

INB 448L Invertebrate Biology 4 Hours

Examine the diversity and evolution of multicellular invertebrate animals, with emphasis on common themes in animal body construction and function.

INB 349P Pandemic Science 3 Hours

Examine the history, spread, mitigation, and forecasting of pandemics.

INB 351 Economic Botany 3 Hours

Analyze the origin of domesticated plant species, the role in nature of plant products, and the ways natural products have been altered through artificial selection.

INB 352 Reproductive Biology of Flowering Plants 3 Hours

Examine pollination biology, breeding systems, reproductive strategies, and fruit and seed dispersal from evolutionary and ecological vantage points.

INB 353F Field Entomology 3 Hours

Discuss insects with emphasis on field study techniques, visual identification of species, collecting techniques, and curation in the field.

INB 453L Entomology 4 Hours

Examine the characteristics, importance, and biology of the major groups of insects.

INB 353S Sleep Science 3 Hours

Explore the basics of sleep science. Examine current research questions and novel approaches. Discuss the range of sleep disorders and their diagnoses.

INB 354L Ichthyology 3 Hours

Discuss an overview of the evolution, biology, and ecology of fishes, emphasizing freshwater fishes.

INB 455L Vertebrate Natural History 4 Hours

Examine phylogeny, taxonomy, life histories, habits, and distribution.

INB 456L Limnology and Oceanography 4 Hours

Introduction to the study of the interactions between aquatic organisms and their environments.

INB 359J Behavioral Ecology 3 Hours

Examine behavioral ecology, with detailed consideration of animal communication, altruism, sexual selection, and plant-animal interactions.

INB 359K Principles of Animal Behavior 3 Hours

Introduction to the study of animal behavior: descriptive analysis of behavior; physiological basis of behavior; development of behavior; adaptive significance and evolution of behavior; communication and social behavior.

INB 359L Animal Behavior Laboratory 3 Hours

Explore the evolution of animal behavior through hands-on modules that emphasize a range of analytical approaches commonly used in modern evolutionary biology.

INB 361T Comparative Animal Physiology 3 Hours

Examine the physiology of organ systems in animal phyla, with special emphasis on the neural and behavioral adaptations of organisms to their environment.

INB 463L Plant Systematics 4 Hours

Examine the principles of plant classification, phylogeny, and diversity as exemplified by families and species of flowering plants found seasonally in Texas with an emphasis on the local flora.

INB 364 Microbial Ecology 3 Hours

Examine population, community, and ecosystem ecology of microbes and microbiomes.

INB 365S Human Systems Physiology 3 Hours

Explore an overview of human physiology, including the cardiovascular, respiratory, and renal systems, with an emphasis on critical thinking, integration, and application. Examine membrane movement, osmolarity and tonicity, endocrinology, and neurophysiology.

INB 165U Human Systems Physiology Laboratory 1 Hour

Examine human physiology through case studies and hands on experience. Explore the scientific method through the reading of scientific journal articles; writing protocols for basic physiological experiments; and collecting, analyzing, and presenting data.

INB 369F Field Herpetology 3 Hours

Explore species identification by sight and sound, and research techniques such as sampling populations, data collection, and analysis.

INB 369L Herpetology 3 Hours

Examine the biology of amphibians and reptiles, including evolution, ecology, behavior, physiology, life history, and identification.

INB 370 Evolution 3 Hours

Introduction to modern evolutionary biology, focusing on the evolution of molecular, developmental, morphological, and behavioral traits. Examine the genetic and ecological bases of evolutionary changes within populations and of evolutionary divergence in animals and plants.

INB 470L Evolution Laboratory 4 Hours

Perform group lab and field experiments and observations, computer simulations and analyses, and independent research.

INB 471 Introduction to Systematics 4 Hours

Study diversification of living and fossil organisms, including speciation, biogeography, taxonomy, and phylogeny of genes, species, and higher taxa.

INB 471G Natural History Museum Science 4 Hours

Introduction to curatorial practices in natural history museums.

INB 371L Experimental Physiology 3 Hours

Explore an experimental approach to physiological mechanisms by which animals adapt to their environment.

INB 373 Ecology 3 Hours

Introduction to ecology, the study of relationships among organisms and between organisms and their environment; adaptations, population, communities, and ecosystems. Examine both plants and animals and both terrestrial and aquatic ecosystems.

INB 373L Ecology Laboratory 3 Hours

Explore intensive field ecology, including group field experimentation and observation, independent projects, and field trips to other vegetation zones.

INB 374 Plant Anatomy with Histological Techniques 3 Hours

Examine tissue organization and cellular details of stems, roots, and leaves of seed plants, with emphasis on development and function.

INB 174L Laboratory in Plant Anatomy and Histological Techniques 1 Hour

Explore a demonstration of cellular details and tissue systems of plant organs. Discuss the preparation of plant materials for histological examination.

INB 375 Conservation Biology 3 Hours

Apply the principles of ecology to the preservation of wild plant and animal species and to the preservation, management, and restoration of natural and seminatural ecosystems. Focus on scientific, biological aspects of issues such as endangered species protection, preserve design, and forest management.

INB 376G Biodiversity in the Anthropocene 3 Hours

Examine how global change is impacting biodiversity in what is now called the Anthropocene – a new geological era where humans are the largest driver of changes in the earth system.

INB 177, 277, 377 Undergraduate Research 1-3 Hours

Conduct laboratory or field research in the various fields of biological science under the supervision of one or more faculty members.

INB 478L Comparative Vertebrate Anatomy 4 Hours

Study vertebrate morphology from developmental anatomy to the function, biomechanics, and phylogenetic relationships of living and fossil taxa.

INB 379H, 679H Honors Tutorial Course 3,6 Hours

Perform original laboratory or field research project under the direction of a faculty mentor, leading to a thesis or research presentation for students in the honors program in biology.

INB 698 Thesis 6 Hours

INB 398R Master's Report 3 Hours

Prepare a report to fulfill the requirement for the master's degree under the report option.

INB 399W, 699W, 999W Dissertation 3,6,9 Hours