

Biology (BIO)

BIO 101C, 301C, 401C, 601C Topics in Biology 1,3,4,6 Hours
Topics in biology that are especially relevant to current issues and problems in modern society.

BIO 101C.1, 301C.1, 401C.1, 601C.1 The Biology of Being Human 1,3,4,6 Hours

Introductory biology course that covers human evolution, genetics and genomics, behavior, population growth and environmental issues.

BIO 301E Problems in Modern Biology 3 Hours

An introduction to major concepts in biology, with emphasis on topics, such as genetics, that are relevant to current issues in the field.

BIO 102C, 202C, 302C, 402C Conference Course 1-4 Hours

Supervised study of selected subjects in biology, by individual arrangement with the instructor.

BIO 302D Science Literacy and Numeracy: Ecology and Evolution 3 Hours

Explore science literacy and numeracy skills through methods of inquiry; dealing with quantitative data; and correcting common misconceptions regarding rational and quantitative thought. Examine these skills in the context of news events that include reference to some or all of the following: Mendelian genetics; microevolution; macroevolution; population ecology; community ecology; ecosystem ecology.

BIO 302E Science Literacy and Numeracy: Genetics and Genomics 3 Hours

Explore science literacy and numeracy skills through methods of inquiry, dealing with quantitative data and correcting common misconceptions regarding rational and quantitative thought. Examine these skills in the context of news events that include reference to some or all of the following: human genetics; analysis and manipulation of DNA; genetic testing; assisted reproductive technology; human ancestry; personalized medicine; forensic genetics.

BIO 302F Science Literacy and Numeracy: Human Health and Disease 3 Hours

Explore science literacy and numeracy skills through methods of inquiry, dealing with quantitative data and correcting common misconceptions regarding rational and quantitative thought. Examine these skills in the context of news events that include reference to some or all of the following: metabolic diseases, infectious diseases, genetic diseases - causes, prevention, and treatments.

BIO 302G Science Literacy and Numeracy: Biotechnology and the Future 3 Hours

Explore science literacy and numeracy skills through methods of inquiry, dealing with quantitative data and correcting common misconceptions regarding rational and quantitative thought. Examine these skills in the context of news events that include reference to some or all of the following: climate change; genetically modified organisms; biomedical technology.

BIO 206L Introductory Laboratory Experiments in Biology 2 Hours

The organizing principles of biology (such as molecular and cellular functions, reproduction, development, homeostatic mechanisms, and organismal physiology and behavior) are used within a comparative and evolutionary framework to train students in modern laboratory techniques, bioinformatics, experimental design, and interpretation of results.

BIO 106M Introduction to Lab Experiments in Biology 1 Hour

Explore the organizing principles of biology (such as, molecular and cellular functions, reproduction, development, homeostatic mechanisms, and organismal physiology and behavior) and how they are used within a comparative and evolutionary framework in modern laboratory techniques, bioinformatics, experimental design, and interpretation of results.

BIO 106N Introduction to Lab Experiments in Biology II 1 Hour

BIO 311C Introductory Biology I 3 Hours

Introduction to biological energy transformation, cell structure and physiology, and gene expression.

BIO 311D Introductory Biology II 3 Hours

Introduction to mechanisms of inheritance, evolution, physiology, and species interactions.

BIO 315H Advanced Introduction to Genetics: Honors 3 Hours

Basic principles of genetics and cell biology. Emphasis on gene structure and regulation; transmission of heritable traits; structure and function of cells; bacterial and viral genetics; and recombinant DNA technology.

BIO 119S, 219S, 319S, 419S, 519S, 619S, 719S, 819S, 919S Topics in 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 adviser 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. .

BIO 325 Genetics 3 Hours

Basic principles of Mendelism, molecular genetics, structure and function of genes and chromosomes, populations and evolution.

BIO 325H Genetics: Honors 3 Hours

Basic principles of genetics and evolution. Emphasis on population genetics and natural selection; structure and function of organ systems; behavioral ecology; and mutational analysis of organismal development.

BIO 325L Laboratory Experience in Genetics 3 Hours

Experimentation and direct observation in fundamental aspects of transmission genetics.

BIO 129S, 229S, 329S, 429S, 529S, 629S, 729S, 829S, 929S Topics in 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 adviser 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.

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

Recent developments and research methods in the biological sciences.

BIO 137.2, 237.2, 337.2, 437.2 Research Methods: UTeach 1-4 Hours

Students perform independent inquiries and use skills from mathematics and science to solve research problems.

BIO 337J Computational Biology Laboratory 3 Hours

Overview of computational biology, with emphasis on nucleic acid sequence analysis and databases. Class projects and self-learning exercises.

BIO 456L Limnology and Oceanography 4 Hours

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

BIO 068 Peer Assistant 0 Hours

BIO 170C, 270C, 370C, 470C Topics in Conference Course 1-4 Hours
Supervised study of selected topics in biology, by individual arrangement with the instructor.

BIO 372C Biology Peer Mentors in Research/Teaching 3 Hours
Students work as peer mentors and assistants in the teaching of biology, with emphasis on developing instructional materials that teach fundamental biology with real world data.

BIO 177, 277, 377 Undergraduate Research 1-3 Hours
Laboratory or field research in the various fields of biological science under the supervision of one or more faculty members.

BIO 379H, 679H Honors Tutorial Course 3,6 Hours
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.

BIO 380M Topics in Biology (Cooperative Programs) 3 Hours
Formal, organized courses taught at institutions other than the University of Texas at Austin.

BIO 381 Advanced Plant Physiology 3 Hours
Concepts in the broad field of plant physiology. Includes aspects of plant growth, development, cell signaling, and stress responses that are very similar to these processes in animals, but will also illustrate unique aspects of plants that exemplify the diversity of life strategies on earth. Explores the critical skills needed to evaluate the current literature, data interpretation, and methods for solving key questions in the field.

BIO 381K Topics in Ecology, Evolution, and Behavior: Physiology and Biophysics 3 Hours

BIO 381K.11 Current Concepts in Neurophysiology 3 Hours

BIO 381K.3 Sensory Physiology 3 Hours
Physiology and biophysics of the transduction and peripheral processes of the major sensory systems.

BIO 381K.4 Current Concepts in Neurobiology 3 Hours
A series of seminars designed to give students a broad background in neurobiology.

BIO 381K.5 Laboratory in Neurophysiology 3 Hours
Training in research techniques useful for the neurophysiological study of vertebrate and invertebrate nervous systems.

BIO 381K.6 Insect Physiology 3 Hours
An in-depth study of the physiology of insect organ systems, development, and behavior.

BIO 381K.7 Developmental Neurobiology 3 Hours
Neuronal cell lineage and differentiation, neuronal migration, axon guidance, neural cell death, synapse formation and maintenance.

BIO 381K.8 Addiction Biology 3 Hours

BIO 381N Basic Processes of Nerve Cells 3 Hours
Degeneration and regeneration in nervous systems following traumatic injury; invertebrate versus vertebrate, peripheral nervous system versus central nervous system, axonal versus cell body, role of glia versus neurons.

BIO 383K Topics in Ecology, Evolution, and Behavior: Development and Reproduction 3 Hours

BIO 383K.1 Hormonal Control of Development and Reproduction 3 Hours

BIO 383K.2 Techniques in the Study of Development and Reproduction 3 Hours

BIO 383K.3 Comparative Endocrinology 3 Hours
Structure, function, and interrelationships of endocrine glands, with emphasis on the control of hormone synthesis and secretion and mechanisms of hormone action.

BIO 383K.4 Recent Advances in Development and Reproduction 3 Hours
Discussion of recent scientific papers and their contribution to modern work in development and reproduction.

BIO 383K.5 Molecular Analysis of Development 3 Hours
Lectures and discussion concerning the principles of animal development at the molecular level.

BIO 383K.8 Development and Evolution 3 Hours

BIO 384K Topics in Ecology, Evolution, and Behavior 3 Hours
Basic concepts and methods of laboratory and field analysis in various fields of biology; systematics and ecology of natural populations.

BIO 384K.30 Recent Advances in Community Ecology 3 Hours
Seminar course. Faculty- and student-led lectures and discussions of current topics in community ecology. Some written assignments required.

BIO 384K.32 Recent Advances in Macroecology 3 Hours
Examines recent ideas and new findings in the fields of Macroecology, Biogeography, and Ecosystem Science.

BIO 384K.33 Recent Advances in Conservation Biology 3 Hours
Seminar course. Faculty- and student-led discussions of current topics in population ecology. Some written assignments may be required.

BIO 384K.34 Recent Advances in Microbial Ecology 3 Hours
Explores current subjects and controversies in microbial ecology, including community and ecosystem perspectives. Includes faculty- and student-led discussions of primary literature. Some written assignments required.

BIO 384K.35 Global Environmental Change 3 Hours
Explores the knowledge of current environmental change and biological responses, efforts to understand and predict changes in the future through both experimental manipulations and models. Discussion of the scientific philosophy behind this work.

BIO 384K.41 Recent Advances in Molecular and Genomic Evolution 3 Hours

BIO 384K.42 Human and Primate Evolutionary Genetics 3 Hours

BIO 386 Topics in Plant Science: Ecology and Evolution 3 Hours

BIO 386.10 Recent Advances in Plant Systematics 3 Hours
Basic concepts and methods of laboratory and field analysis in various fields of biology; systematics and ecology of natural populations.

BIO 386.11 Advanced Subjects in Plant Ecology 3 Hours

BIO 386.12 Advanced Subjects in Plant Evolution 3 Hours

BIO 386.13 Advanced Subjects in Plant Molecular Biology 3 Hours

BIO 487G Taxonomic Plant Anatomy 4 Hours
An advanced course that emphasizes those aspects of plant anatomy that are most reliable and useful for systematic purposes.

BIO 389C Chemistry and Biology of Membranes 3 Hours
Consideration of the origin and structure of biological membranes at the microscopic and molecular levels; describes membrane function, especially with regard to transport properties.

BIO 389K Advanced Cell Biology 3 Hours

BIO 190, 290 Topics in Microbiology 1-2 Hours
Discuss current topics in microbiology.

BIO 890G Applied Public Health and Medical Microbiology 8 Hours
One semester of full-time training in the Texas Department of Health Laboratories, with rotation in the divisions of medical microbiology, mycology, parasitology, virology, sanitary bacteriology, and biologics. Assigned reading and regular meetings with the Department of Health Laboratories staff and the molecular genetics and microbiology faculty.

BIO 290K Scanning Electron Microscopy, Theory and Practice 2 Hours
Theory of scanning electron microscopy and basic principles of instrument design; basic procedures in specimen preparation; hands-on experience.

BIO 490M Electron Microscopy I: Theory and Practice 4 Hours
An introduction to electron optics; emphasis on basic operation and maintenance of the transmission microscope; theory and practice of basic preparative techniques.

BIO 390P Techniques in Molecular Genetics 3 Hours
Laboratory training in modern molecular genetics, with emphasis on the manipulation of bacterial plasmid DNA as a model system. DNA purification, gene mapping and cloning, site-directed mutagenesis, polymerase chain reaction, and DNA sequencing.

BIO 391K Cellular Immunology 3 Hours
Cell-associated immune responses, with emphasis on transplantation, immunity, tumor immunology, delayed hypersensitivity, and acquired cellular resistance.

BIO 391R Advanced Metabolism and Biochemistry of Microorganisms 3 Hours
Study of the metabolic processes of microorganisms, using a biochemical approach.

BIO 391S Microbial Genetics 3 Hours
Molecular biology of nucleic acids; biosynthesis of macromolecules, transfer of genetic material from cell to cell, recombination, mutagenesis, and regulatory mechanisms.

BIO 392 Topics in Problems in Host-Parasite Biology 3 Hours

BIO 392.1 Current Topics in Virology and Immunology 3 Hours

BIO 392.2 Current Topics in Pathogenic Mechanisms 3 Hours

BIO 392D DNA Repair 3 Hours
Broad overview of the repair of DNA in archae, prokaryotes, eukaryotes, and viruses, focusing on the primary research literature, and developing critical thinking and presentation skills.

BIO 393 Topics in Problems in Molecular Genetics 3 Hours

BIO 393.1 Current Topics in DNA Transactions 3 Hours

BIO 393.2 Current Topics in Fungal and Cell Molecular Biology 3 Hours

BIO 393.3 Current Topics in Gene Regulation 3 Hours

BIO 394 Topics in Problems in Microbial Physiology 3 Hours

BIO 394.1 Current Topics in Cell Envelope Structure and Functions 3 Hours

BIO 394.2 Current Topics in Microbial Signal Transduction 3 Hours

BIO 394T Tumor Biology 3 Hours
Explore core aspects of cancer pathology, treatment, epidemiology, the discovery of oncogenes and tumor suppressors, and the molecular genetics underlying the characteristic features of malignant tumors (including metastatic behavior, genomic instability, angiogenesis, cell cycle regulation, and apoptosis). Emphasize the biochemical functions of cancer-related proteins and enzymes and therapeutic approaches based on understanding of these proteins. Examine important experimental approaches that have influenced the current understanding of cancer.

BIO 395F Genetics 3 Hours
Basic principles of Mendelian and molecular genetics, and an exploration of the genetic toolbox using examples of analytic methods and modern genetic manipulations. Focus on the genetic analysis of model organisms. Use of genetic tools in dissecting complex biological pathways, developmental processes, and regulatory systems.

BIO 395I Advanced Biochemistry 3 Hours
Explore advanced biochemistry concepts and the scientific process. Consider the structure and function of proteins, carbohydrates, lipids and nucleic acids, and discuss enzyme mechanisms and kinetics.

BIO 396 Membranes and Walls of Bacteria 3 Hours
Structure, biosynthesis, and function of bacterial envelopes and walls, including associated optional components.

BIO 396R Microbiology Research Seminar 3 Hours
Students present their research findings and receive feedback from faculty and peers. Designed to help students refine their presentation techniques, practice giving critical feedback, and gain familiarity with a wide variety of research topics.

BIO 197 Seminar in Microbiology 1 Hour

BIO 397J Advanced Genetics 3 Hours
Selected related topics of current interest with an emphasis on molecular developmental genetics, and any needed review of classical genetics. Designed to help the student to read the literature critically, deliver a good seminar, and participate in thoughtful discussion.

BIO 398T Supervised Teaching in Biological Sciences 3 Hours
Teaching under the close supervision of course instructors; weekly group meetings with the instructor, individual consultations, and reports throughout the teaching period.