Undergraduate Courses

BIOL 100 Principles of Biology I GER 2/E PD/C or D

The chemical basis of life; basic structure and function of pro- and eukaryotic cells; bioenergetics; Mendelian and molecular genetics; development and mechanisms of control of gene expression at all levels; population genetics and evolution. $5 materials fee required. PD credit awarded only upon completion of BIOL 100 and 102. Prereqs: MATH 125 and CHEM 102 or equivalent 7 hrs (3 lec, 3 lab, 1 disc), 4.5 cr. Spring and Summer

BIOL 102 Principles of Biology II GER 2/E PD/C or D

Taxonomy; homeostasis; internal transport and gas exchange in plants and animals; plant hormones; osmoregulation; mechanisms of action in the muscular, nervous and neuroendocrine systems; behavior; ecology. $5 materials fee required. PD credit awarded only upon completion of BIOL 100 and 102. Prereqs: BIOL 100 or equivalent 7 hrs (3 lec, 3 lab, 1 disc), 4.5 cr. Fall only

BIOL 105 Introduction to Genome Biology

Life and Physical Sciences (LPS)

A genome is the total genetic content of an organism. Driven by breakthroughs such as the decoding of the first human genome and rapid DNA-sequencing technologies, biomedical sciences are undergoing a rapid and profound transformation into a highly data-intensive field, which requires familiarity with concepts in both biology and computer science. Genome information is revolutionizing virtually all aspects of biology and medicine and will lead to major advances such as more efficient production of renewable energy, better cures for cancers, and longer and healthier life expectancy. This course will introduce genome-sequencing technologies, explore hundreds of genome projects online, and discuss both the benefits and challenges (e.g., ethical and legal) of the genomic revolution to society. No Prerequisites (3 lec), 3 cr.Spring and Fall

BIOL 107 Human Barcode: Biology and Genetics of Personal Identification

The Human Barcode: Biology and Genetics of Personal Identification is an introductory lecture/laboratory course (3 credits) for non-biology majors. This course will cover the techniques used by scientists to analyze how DNA or skin can uniquely lead to a person's identification, and the biological concepts behind them. Not accepted for credit toward the biology major. No Prerequisites (1.5 lec, 3hr lab), 3 cr. Fall only

BIOL 120 Anatomy and Physiology I

Cell structure and function; histology; nervous, muscular and skeletal systems; integument. Required for admission to the nursing program. Not accepted for credit toward the biology major. Prereqs: CHEM 100, 101 coreqs: CHEM 120, 121 7 hrs (3 lec, 4 lab), 4.5 cr. Fall only

BIOL 122 Anatomy and Physiology II

Structure and function of circulatory, digestive, excretory, endocrine and reproductive systems. Basic concepts of metabolism, genetics and embryology. Required for admission to the nursing program. Not accepted for credit toward the biology major. Prereq: BIOL 120 or equiv. 7 hrs (3 lec, 4 lab), 4.5 cr. Spring only

Biol 125 Human Biology GER 2E

Human Biology BIOL 125 is an introductory laboratory course for non-biology majors. This course explores the biology that underlies current health and disease topics (including diabetes, cancer, sexually transmitted diseases, nutrition). Using a topics approach, the course provides a

survey of human anatomy and physiological function, along with the biological principles of genetics and cellular interactions that comprise our current understanding of the human organism. Laboratory exercises will introduce students to a scientific approach in studying human disease and physiology. The credits from this course will not count towards the Biology Major. Fulfills GER 2E, LPS, SW requirement. No Prerequisites (6 lec) 4.5 credits Spring only

Biol 150 CSI: Hunter - Forensic Biology GER 2E

CSI: Hunter is an introductory laboratory course for non-biology majors. This lecture/laboratory course will cover the techniques used by forensic scientists to analyze a crime scene, and the biological concepts behind them. Through the topics that are covered, students will learn how biological evidence like fingerprints, blood, and DNA are collected, analyzed, and presented as evidence to solve crimes. The credits from this course will not count towards the Biology Major. Prereq: MATH 101 or equivalent. (6 lec) 4.5 credits. Fulfills GER 2E, LPS, SW requirement Fall only

BIOL 160 Honors Principles of Biology II GER 2/E PD/C or D

Enrollment limited. Physiological systems and their regulation: internal transport, hormones and gas exchange in plants and animals; osmoregulation; motility; nervous, neuroendocrine, immunological and sensory systems; behavior, reproduction and ecology. Students will read reviews of current research in addition to the required text. Guest speakers and class presentations. Core credit awarded only if BIOL 100 and 160 are both completed. PD credit awarded only upon completion of BIOL 100 and 160. Prereqs: grade of B or better in BIOL 100 or perm instr, MATH 101 or equiv.7 hrs (3 lec, 3 lab, 1 disc), 4.5 cr. Spring only

BIOL 17500 - Choreographing Genomics

Hunter Core Scientific World (SW)

This course uses postmodern dance to model biological processes. It is an introductory biology course for non-majors studies in the biological science of molecular genome information through readings, quantitative assignments, movement exercises and artistic lenses. Students explore a detailed examination of heredity and cancer with a focus on contributions of DNA. Students are expected to articulate gene information flow through problem solving, written assignments, oral contributions, and movement forms. Topics covered include the definition of a gene, recombination of genes, the central dogma of genetic flow in a biological system, the 1:1 Pair Rule (Chargaff's rules), DNA sequencing, functional genomics and the relationships of genes to cancer and heredity, as well as ethical issues in medicine. Each student is in charge of their own body and must recognize that they will have to use their body for assignments and in class participation work. Students will be required to talk and move in class (comfortable clothes, flat shoes or bare feet, and a yoga mat are required). Students will have reflective assignments that include written work.Students will be required to develop visual and movement-based models. Prereq: MATH 10100 3 hrs 3 cr. Fall only

BIOL 203 Molecular Biology and Genetics

This course includes a detailed examination of the fundamental principles of gene expression. The processes of DNA replication, transcription, mRNA processing, micro RNA function, and translation will be extensively covered. Prokaryotic and eukaryotic systems will be described. Classical Mendelian as well as molecular genetics principles will be covered in the lecture through a discussion of several model systems. Important genetic processes such as recombination, transposition and DNA repair will be discussed in-depth. The course will provide a modern view of the concept of the gene, and introduce basic bioinformatics analysis. Hands-on laboratory experiments will reinforce bacterial and eukaryotic genetic concepts as

well as provide basics in recombinant DNA technology. Prereqs: Advisor permission; BIOL 100 and 102 or equiv; CHEM 102, 104, 106 or equiv. coreqs: CHEM 222, 223 or perm instr. 7 hrs. (3 hrs lecture, 4 hrs lab),4.5 cr. Spring only

BIOL 208 Ecology

In this summer field-work class, students will investigate how NYC's natural environment has physically and biologically developed over time, and how it has been shaped by cultural and social demands. Relationships between people, plants and animals will be examined, as well as the evolution of ideas and decisions that have impacted our city in the past. Several sites will be visited, where students will explore land and waterfront management and restoration issues. 3 credits and meets 6 hours (lec/fieldwork). Prereq: BIOL 100/102. Summer only

BIOL 210 Introduction to Research Technology GER 3/B

This course is designed to provide practical experience and background information to students prior to their entry into an experimental research project in a faculty laboratory. There is no formal writing requirement for this course other than a 10 min. PowerPoint presentation at the end of the semester Prereq:BIOL 100 or permission of instructor

BIOL 220 Topics in Genetics and Evolution

Introduction to chromosome structure, mitosis and meiosis. Principles of Mendelian segregation. Linkage and eukaryotic gene mapping. Genetic analysis of mutations, and their use in genetic screens for gene discovery and pathway analysis in model genetic systems (yeast, flies, and mice). Basic principles in molecular evolution. Prereq: BIOL 100 or equiv. 3 hrs (3 lec), 3 cr. Summer only

BIOL 230 Fundamentals of Microbiology GER 3/B Topics

include scope, historical aspects, taxonomy, survey of the microbial world, viruses, infectious diseases, control of microorganisms and immunology. Required for admission to the nursing program. Not accepted for credit toward the biology Major. Prereqs: CHEM 10000, 10100 or equiv; BIOL 12000 or BIOL 10200 (2 lec, 3 lab), 3 cr. Spring only

BIOL 250W Current Topics in the Biosciences GER 3/B

Seminar for non-science majors focusing on topics of current relevance such as the science of emerging diseases, bioterrorism, genetic engineering, stem cell research and global warming. Coverage includes the social, legal, political and ethical issues associated with each topic. pre- or coreq: ENGL 120 or equiv, 2 sem intro lab science or equiv, or perm instr. 3 hrs 3 cr. Spring and Fall only

BIOL 270 Introduction to Neuroscience

This is a one-term introductory lecture course. The main focus is to provide an understanding of the principles underlying the function of the nervous system while comprehending certain experimental procedures that have led to this knowledge. In the first part of the course, the cellular and molecular mechanisms that regulate the activity of individual neurons will be discussed. Then, based on model systems, we will examine how neurons are assembled in networks to give rise to sensation and function. Finally, topics related to the development, maintenance, and plasticity of these networks will be covered. Prereqs: BIOL 100 and BIOL 102, 3 hrs 3 cr. Accepted for credit toward the Biology Major. Fall only

BIOL 280 Biochemistry of Health and Nutrition GER 3/B

Basic biochemistry in areas related to human health and nutrition. Designed for students in the dietetics program. (Not accepted for credit toward biology Major I.) Prereqs: BIOL 100, 102 or 120, 122; CHEM 100, 120 3 hrs (lec), 3 cr. Fall only

BIOL 300 Biological Chemistry GER 3/B

Molecular aspects of cellular function; properties of biomolecules, their biosynthesis and breakdown; structure and function of proteins and enzymes, metabolites, membranes and nucleic acids; cellular mechanisms of energy transduction; integration and control of cell metabolism. Experiments cover a variety of modern techniques in molecular biology. $10 materials fee required. Prereqs: BIOL 100, BIOL 203 (for Biol Majors), coreq:CHEM 222. 7 hrs (3 lec, 4 lab), 4.5 cr. Fall only.

BIOL 301 Biological Chemistry GER 3/B

BIOL 300 without lab. Prereqs: BIOL 100, coreq:CHEM 222. 3 hrs (lec), 3 cr. Offered Fall and Spring

BIOL 303 Cell Biology GER 3/B

This Biology major capstone course builds upon what has been learned in molecular biology & genetics and biochemistry providing and integrated look at the molecular biology of the cell. Separated into 5 units. the lecture and laboratory components are coordinated. The course includes integrated components in the following eukaryotic cell biology areas through the following 5 units: 1. Introduction: Cell morphology and commonly used techniques for examining the cell. An introduction to cell proliferation, cell motility, and cell communication (comparing prokaryotic and eukaryotic systems). 2.Cell Cycle Regulation: Cell cycle regulation, cellular signal transduction, regulation of cell proliferation and cell growth, cell death mechanisms, and de-regulation of cell growth the process of tumorigenesis. 3. Membranes and Cytoskeleton: Membranes, cytoskeleton, and signaling, are including mechanisms for transport and cellular channels for intracellular and intercellular communication. Human biology and disease as it pertains to membrane biology. 4. Organelles: Intracellular organelles are examined in detail for their structures and functions. This includes, but is not limited to, mitochondrial function and energy production, protein degradation pathways and intracellular trafficking. 5.Cell Communication: Cellular differentiation, cell-cell communication, and an introduction to development. Prereq: Advisor permission; BIOL 300 or instructor permission. 7 hrs. (3 lec, 4 lab),4.5 cr. Spring Only

BIOL 304 Environmental Microbiology GER 3/B

Role of microorganisms in normal and polluted environments: bioremediation, waste and water treatment, heavy metals, nutrient cycles, microbes as a food source, algal toxins, microbial pesticides, microbial indicators of mutagens and pollutants, microbial leaching of ores. Prereqs: BIOL 100, 102, 200 or perm instr.3 hrs (lec), 3 cr. Spring alternate years

BIOL 306 Developmental Biology GER 3/B

Major topics include molecular and cellular mechanisms of early embryonic development in amphibians, mammals and model organisms such as Drosophila, as well as the related subjects of vertebrate organ system development, biology of stem cells and animal cloning. Emphasis is placed on seminal and current research in cell-cell communication, signal transduction and differential gene regulation in developmental processes. Prereqs: BIOL 203, BIOL300 or instructor's permission. 3 hrs (lec), 3 cr. Fall only

BIOL 350 The Biology of Cancer GER 3/B

When a normal cell becomes a cancer cell there are genetic changes that occur that alter the biology of the cell such that it behaves independent of its neighbors. This course will investigate the altered biology of cancer cells that lead to uncontrolled proliferation and cancer. Topics include: cell culture, the cell cycle, hormones, receptors, intracellular signal transduction, cancer cell metabolism, oncogenes, tumor suppressor genes, apoptosis, metastasis, cancer immunology, and the etiology of human cancer. Prereqs: BIOL 203, coreq: BIOL300, or perm

instr. 3 hrs (lec), 3 cr. Fall and Spring

BIOL 360 Cellular and Molecular Immunology GER 3/B

Study of the immune system from a molecular perspective. Molecular genetics of antibody and T cell receptor diversity, hematopoiesis and lymphocyte development, humoral and cellular immunity, histocompatibility. pre- or coreq: BIOL 300, perm instr.4 hrs (3 lec, 1 disc), 3.5 cr. Fall only

BIOL 370 Physiology of the Nervous System GER 3/B

A comprehensive introduction to neuroscience. Topics include how nerve cells (neurons) transmit electrical impulses, how neurons communicate with each other through synapses and how nerve pathways and networks determine many functions of the brain. The last portion of the course shall explore how developing neurons seek out targets and establish synapses. Prereq: BIOL 300 or perm instr. 4 hrs (lec), 4 cr. Fall only

BIOL 375 Molecular Evolution GER 3/B

An overview of the various methods and kinds of data used in systematics, the study of organism diversity and biological relationships. Emphasis is on modern molecular and genetic approaches to identification of individual species and strains and full phylogenetic analyses of suites of species to determine their evolutionary history. The knowledge base is provided for experimental investigation of questions of current interest in phylogeny and population biology. Prereq: BIOL 300 or perm instr. 3 hrs, 3 cr. Fall only

BIOL 376 Endocrinology GER 3/B

Cellular organization of the endocrine system; molecular mechanisms of hormone action; hormonal physiology of metabolism and reproduction; integration of endocrine responses by the central nervous system. Prereq: BIOL 203 or perm instr. 3 hrs (lec), 3 cr. Spring only

BIOL 380 Molecular Neurobiology GER 3/B

Molecular components and molecular mechanisms involved in the cell biology of neurons and glia, neuronal signaling, neuronal development, learning, memory and diseases of the nervous system. Prereq: BIOL 300 or perm instr. 3 lec hrs, 3 cr. Fall only

BIOL 390 Laboratory in Cell Structure GER 3/B

Applications of light and confocal microscopy, using fluorescence and multidimensional imaging to study cell structures. Lab projects involve immunofluorescence: fixation methods and immunocytochemistry. Illumination methods including multi-channel 3D rendering, image processing and visualization software. Prereqs BIOL 203 coreq: BIOL 300 or BIOL 303 and perm instr. 7 hrs (2 lec/demo, 5 lab), 4.5 cr. Fall only

BIOL 392 Laboratory in Ultra Cell Structure GER 3/B

application of electron microscopic techniques to study cell structure and function for medicine, research and industry. The theory and mechanics of both transmission electron microscopy and scanning electron microscopy will be explored as well as cell ultrastructure and function. Prereq BIOL 203 coreq: BIOL 300 or BIOL 303 and perm instr. 7 hrs (1 lec/demo, 6 lab), 4.0 cr. Spring only

BIOL 400 Special Topics in Advanced Laboratory Techniques GER 3/B

Advanced laboratory techniques used in contemporary biological research, including areas such as immunology, microbiology and molecular neurobiology. Topics change from term to term. Prereqs: BIOL 300 or perm instr. 4 hrs (lab), 2 cr.

BIOL 425 Computational Molecular Biology GER 3/B

This is a capstone course for Bioinformatics concentration students from five science majors (Biology, Chemistry, Computer Science, Mathematics, and Statistics). Biomedical research is

becoming a high-throughput science. As a result, information technology plays an increasingly important role in biomedical discovery. Bioinformatics is a new interdisciplinary field formed between molecular biology and computer science. This course introduces both bioinformatics theories and practices. Topics include: database searching, sequence alignment, molecular phylogenetics, structure prediction, and microarray analysis. Prior experiences in the UNIX Operating System and at least one programming language are required. Pre-requisites: CSCI132 (Practical Unix and Perl Programming) and BIOL203, or perm instr. 3hr, 3 cr. Spring only.

BIOL 450 Individual Tutorial in Biology GER 3/B

May be taken only once. Research paper written under the direction of a full-time faculty member in department of biological sciences. Prereqs: 18 cr in biology, approval of adviser in addition to the sponsor 1-2 cr.

BIOL 460 Introduction to Planning and Teaching of Laboratory Work in Biology GER 3/B

Participation in discussions and assisting in the teaching of laboratories and/or lectures in an introductory course, or peer mentoring in the undergraduate biological sciences, including research techniques facility. Prereqs: 16 cr in BIOL, 12 cr in CHEM, 2 letters from faculty required 5 hrs (2 planning, 3 lab/assisting), 2 cr.

BIOL 470, 471 Special Topics in Biology GER 3/B

Specific area of contemporary interest in biology. Topics and offerings change from term to term. An oral presentation and a written paper are required. Prereqs: BIOL203, BIOL300 2 hrs (lec), 3 cr. per sem.

BIOL 480-483 Introduction to Experimental Biology GER 3/B

Laboratory research under guidance of faculty member. Work at another institution may be permitted in some cases, under auspices of a faculty member. Written report required upon completion of research. A minimum of 2 credits satisfies the research requirement for graduation with departmental honors. Permission of the supervising faculty member is required. hrs TBA, 1-2 cr. per sem.

BIOL 610 Workshop in Biotechnology GER 3/B

A series of laboratory-intensive experimental projects, each lasting one week or more, which introduce current research techniques and include individual participation in planning and preparation of experiments. The focus is on a broad biotechnology topic such as the isolation, cloning and expression of a gene, utilizing the techniques of molecular genetics. This course satisfies the research requirement for graduation with departmental honors and is a component of the interdisciplinary BS/MA (MLS/Biol) program in biotechnology. Prereqs: BIOL 300, perm instr. 30 hrs/week for 4 weeks, 4 cr. Summer and Winter

Courses Not Offered in 2020
BIOL 185 Bioinformatics Workshop
BIOL 252 Comparative Anatomy of the Vertebrates
BIOL 322 Evolution
BIOL 335 Comparative Animal Physiology
BIOL 340 Plant Physiology

Joomla SEO powered by JoomSEF