

BIO - Biology

Courses

BIO 100 Integrated Biology and Skills for Success in Science **6 Credits. 5 Lecture Hours. 3 Lab Hours.**

A course on integrated biological, mathematical, and scientific laboratory skills needed for success in anatomy and physiology courses required for Health and Public Safety majors, as well as science courses in all majors. Topics include: biological, biochemical, and organismal processes; math fundamentals for science application; and introductory lab experiences. Students must pass a comprehensive exam to pass this course.

Prerequisites: Placement into ENG 101A, and MAT 093 or MAT 105A or MAT 131A or appropriate Math placement

BIO 111 Biology: Unity of Life **4 Credits. 3 Lecture Hours. 2 Lab Hours.**

A course on characteristics shared by all living organisms. Topics include: the nature of science, chemistry of life, cell biology, energetics and biochemical pathways, cell division, genetics, molecular biology, and the origin of life.

Prerequisites: FYE 120 or placement into ENG 101, and MAT 093 or MAT 105A or MAT 131A or appropriate Math placement

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BIO 112 Biology: Diversity of Life **4 Credits. 3 Lecture Hours. 2 Lab Hours.**

A continuation of BIO 111. Topics include: taxonomy and evolution of animals, plants, fungi, protists, bacteria, and viruses; animal behavior; ecology; population growth; and conservation biology.

Prerequisites: BIO 111

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BIO 115 Human Genetics **3 Credits. 3 Lecture Hours. 0 Lab Hour.**

A course on human traits, genetic conditions, and inheritance. Topics include: DNA structure, patterns of inheritance, meiosis, karyotypes, genetic engineering, ethical considerations for genetics, and societal implications of an individual's genetic identity. The course is delivered through online instruction only.

Prerequisites: BIO 100 or BIO 111 or BIO 131 (minimum grade C for all)

BIO 117 Human Body in Health and Disease **3 Credits. 3 Lecture Hours. 0 Lab Hour.**

A course on fundamentals of the structure and function of the human body. Topics include: anatomy, normal function contrasted with dysfunction, and common diseases of body systems including symptoms and treatments.

Prerequisites: Placement into ENG 101A, and MAT 093 or MAT 105A or MAT 131A or appropriate Math placement

BIO 127 Human Body in Health and Disease Laboratory **1 Credit. 0 Lecture Hour. 2 Lab Hours.**

A laboratory course that accompanies BIO 117. Laboratory activities include: exercises, slides, models, and animal organ dissections.

Prerequisites: Placement into ENG 101A, and MAT 093 or MAT 105A or MAT 131A or appropriate Math placement

Corequisites: BIO 117: Human Body in Health and Disease

BIO 131 Biology 1 **5 Credits. 4 Lecture Hours. 3 Lab Hours.**

A course on the chemistry of life. Topics include: cellular structure and function; characteristics of life; theory of evolution; understanding DNA and its role in heredity, regulation of biological systems, bioenergetics, and biochemical pathways; and current developments in biotechnology.

Prerequisites: BIO 111 (minimum grade C), or high school Biology within past 5 years (minimum grade C)

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BIO 132 Biology 2 **5 Credits. 4 Lecture Hours. 3 Lab Hours.**

A continuation of BIO 131. Topics include: scientific theory, history of scientific discovery, evolutionary principles, form and function of living organisms, biological classification, behavior of organisms and their relationships to biological systems, ecological systems, applications of biology, and sustainability.

Prerequisites: BIO 131 (minimum grade C)

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BIO 151 Anatomy and Physiology 1 **4 Credits. 3 Lecture Hours. 2 Lab Hours.**

A course on the structure and function of the human body. Topics include: orientation to anatomy and physiology; cellular function; tissues; special senses; and integumentary, skeletal, muscular, and nervous systems.

Prerequisites: BIO 111, and CHE 100 or CHE 110 or CHE 115; or high school Biology and Chemistry within the past 5 years; or BIO 100 (minimum grade C for all)

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BIO 152 Anatomy and Physiology 2 **4 Credits. 3 Lecture Hours. 2 Lab Hours.**

A continuation of BIO 151. Topics include: endocrine, cardiovascular, immune, respiratory, digestive, urinary, and reproductive systems; metabolism; fluid and electrolyte balance; and human growth and development.

Prerequisites: BIO 151 (minimum grade C)

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BIO 210 Cross Sectional Anatomy **2 Credits. 1 Lecture Hour. 2 Lab Hours.**

A course on sectional anatomy of major human structures including the head, neck, thorax, abdomen, pelvis and extremities; and organ relationships in the axial, coronal, and sagittal planes.

Prerequisites: BIO 152 (minimum grade C)

BIO 220 Microbiology **3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on microbiology and infectious disease. Topics include: microbial taxonomy and identification, microbial cell structure, microbial genetics, metabolism, biotechnology, epidemiology, and immunology.

Prerequisites: BIO 132 or BIO 151 (minimum grade C for either)

BIO 230 Pharmacology

3 Credits. 3 Lecture Hours. 0 Lab Hour.

A course on clinical drug categories and therapies. Topics include: pharmacokinetics; pharmacodynamics; drug classes and schedules; drug approval and regulation; modes of administration; and indications, mechanism of action, and adverse effects.

Prerequisites: BIO 152 (minimum grade C)

BIO 240 Pathophysiology

3 Credits. 3 Lecture Hours. 0 Lab Hour.

A course on fundamental clinical concepts of disease processes. Topics include: terminology, clinical presentations, etiology of disease, manifestations of disease, diagnostic and therapeutic activities, and impact of disease.

Prerequisites: BIO 152 (minimum grade C)

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BIO 250 Cell Biology

5 Credits. 3 Lecture Hours. 4 Lab Hours.

A course on the structure and function of cells. Topics include: cell structure and organelles, membrane function, cell respiration and photosynthesis, intracellular transport, cell to cell communication, and cell division.

Prerequisites: BIO 132 and CHE 100 or CHE 110 (minimum grade C for all)

BIO 260 Genetics

5 Credits. 3 Lecture Hours. 4 Lab Hours.

A course on mechanisms of heredity and genetics. Topics include: DNA and chromosome structure, transcription and gene regulation, replication and cell division, patterns of inheritance, genetic recombination, mutations and their repair, and genetics of cancer development and evolution.

Prerequisites: BIO 131 and CHE 100 or CHE 110 (minimum grade C for all)

BIO 270 Ecology

5 Credits. 3 Lecture Hours. 4 Lab Hours.

A course on interrelationships between organisms and their natural environments. Topics include: ecology and evolution; population ecology, density, dispersion, and dispersal; metapopulations; competition and predation; community structure, succession, and nutrient cycling; and sustainability.

Prerequisites: BIO 132 or BIO 152, and CHE 100 or CHE 110 (minimum grade C for all)

BIO 275 Animal Behavior

5 Credits. 3 Lecture Hours. 4 Lab Hours.

A course on the diversity of animal behaviors examined from mechanistic, ecological and evolutionary perspectives. Topics include: genetic, physiological, neural, and developmental bases of behavior; animal learning and social behavior; predator-prey interaction; and communication, reproduction, mating, and parental systems.

Prerequisites: BIO 132 or BIO 270, and CHE 100 or CHE 110 (minimum grade C for all)

BIO 310 Food Microbiology

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on the role of microorganisms in foods. Topics include: nomenclature, classification, and prevalence and identification of microorganisms that affect food safety, food spoilage, food-borne illness, and food fermentation.

Prerequisites: CHE 115 and CUL 115 and instructor consent
Instructor Consent Required