

BIOLOGY (BIOL)

BIOL 101 ~GENERAL BIOLOGY 1	3 Credit Hours
Introduction to biological principles including the chemistry, structure, and energetics of the cell (photosynthesis and respiration); membrane transport; molecular biology (RNA and DNA), cell reproduction (mitosis and meiosis); molecular genetics to include Mendelian and human genetics; evolution (natural selection and population genetics); and ecology (biodiversity, communities, and populations of living organisms). (3 lecture)	
Corequisite(s): BIOL 103	
BIOL 102 ~GENERAL BIOLOGY 2	3 Credit Hours
An application of basic biological principles to plant and animal organisms. Plant evolution and taxonomy; structure; transport; reproduction; growth; and development are included. Animal evolution and taxonomy; organ systems and homeostasis, and reproduction complete the course. (3 lecture)	
Corequisite(s): BIOL 104	
BIOL 103 ~GENERAL BIOLOGY 1 LAB	1 Credit Hour
Introductory exercises and experiments in general biology to include microscopy and cell structure, organic compounds, osmosis and diffusion, photosynthesis, cell respiration, hydrolysis of carbohydrates, cell reproduction and genetics.	
Corequisite(s): BIOL 101	
BIOL 104 ~GENERAL BIOLOGY 2 LAB	1 Credit Hour
Laboratory studies in general biology covering evolution and systematics, a survey of organism diversity, and basic plant and animal anatomy and physiology.	
Corequisite(s): BIOL 102	
BIOL 105 SCIENCE FOR LIFE	4 Credit Hours
A single semester, non-majors biology course which emphasizes the scientific method, experimentation, and understanding of science that applies to modern life. Most traditional biology topics will be covered, including cell structure and division, genetic inheritance of traits, enzymes, plants, animals, bacteria and viruses. Topics will be presented with applications in mind, rather than as a foundational class for future study in biology. Students must register for both a lecture section and a laboratory section. This course is not intended for transfer. (3 lecture)	
Corequisite(s): BIOL 105L	
BIOL 105L SCIENCE FOR LIFE LAB	0 Credit Hours
(2 lab)	
Corequisite(s): BIOL 105	
BIOL 107 ~ANATOMY AND PHYSIOLOGY 1	4 Credit Hours
An introduction to normal structure and function of the human body; principles of chemistry compounds (biochemistry) cellular, tissue and organs of the body. Four systems are studied for gross and microscopic anatomy and normal functioning; these are integumentary, skeletal, muscular, and nervous systems. Lab work emphasizes microscopic work on cells and tissues, study of bones and muscles, and dissections of brain and eyeball. (3 lecture)	
Corequisite(s): BIOL 107L	
BIOL 107L ANATOMY AND PHYSIOLOGY 1 LAB	0 Credit Hours
(2 lab)	
Corequisite(s): BIOL 107	
BIOL 108 ~ANATOMY AND PHYSIOLOGY 2	4 Credit Hours
Continuation of BIOL 107. This class includes study of the respiratory, circulatory (blood, heart, vessels), lymphatic, urinary, digestive, endocrine and reproductive systems. Normal anatomy and physiology is emphasized, but some pathology is included. Lab work includes dissection of the body systems, plus selected physiology experiments in respiratory volumes, blood and blood genetics, urinalysis, and digestion rates. Critical thinking is developed using clinical examples. The students do research as group projects, such as nutrition, development of science events for teens, or clinical interviews. (3 lecture)	
Prerequisite(s): BIOL 107 or (BIOL 101 or BIOL 111)	
Corequisite(s): BIOL 108L	
BIOL 108L ANATOMY AND PHYSIOLOGY 2 LAB	0 Credit Hours
(2 lab)	
Corequisite(s): BIOL 108	
BIOL 109 ANAT & PHYS FOR ALLIED HEALTH	4 Credit Hours
Essential principles of human anatomy and physiology are presented, including basic chemistry, cell and tissue studies, and an overview of all the body systems. Intended as a survey course for certain allied health programs and as a general natural science course.	
Corequisite(s): BIOL 109L	
BIOL 109L ANAT & PHYS ALLIED HEALTH LAB	0 Credit Hours
(2 lab)	
Corequisite(s): BIOL 109	

- BIOL 110 MICROBIOLOGY FOR SURG TECH** **3 Credit Hours**
 Overview of the structure, physiology and human health implications of microorganisms in relation to human health and disease. Relationship between pathogens and the body's defense system, structure and function of cells, process of infection and the immunologic defense mechanisms, principles of sanitation, sterilization and disinfection. Laboratory sessions will include growth and identification of various pathogens as well as methods to control their spread. (2 lecture, 2 lab)
Prerequisite(s): BIOL 109 and ST 101 and ST 114
Corequisite(s): BIOL 110L
- BIOL 110L MICROBIOLOGY FOR SURG TECH LAB** **0 Credit Hours**
- BIOL 115 ~PRINCIPLES OF BIOLOGY** **4 Credit Hours**
 An introductory biology course that presents basic principles of modern biology. In combination with the accompanying laboratory (BIOL 115L), the course represents the first in an integrated sequence required of biology major transfer students; students who elect biology as a minor in the Multidisciplinary Studies BA degree program; or to fulfill the general education requirement in science. Students must register for both a lecture section and a laboratory section. (3 lecture)
Corequisite(s): BIOL 115L
Pre/Corequisite(s): CHEM 115
- BIOL 115L ~PRINCIPLES OF BIOLOGY LAB** **0 Credit Hours**
 Laboratory portion of BIOL 115. Major emphasis will be on critical reading of scientific literature, experimental design, data collection and evaluation and the preparation of written reports. (2 lab)
Corequisite(s): BIOL 115
- BIOL 117 ~INTRODUCTORY PHYSIOLOGY** **4 Credit Hours**
 Continuation of BIOL 115. The course focuses on the structure, function and diversity of reproductive, developmental, functional and integrative mechanisms in plants and animals. In combination with the accompanying laboratory (BIOL 117L), the course represents the second in an integrated sequence required of biology major transfer students; students who elect biology as a minor in the Multidisciplinary studies BA degree program; or to fulfill the general education requirement in science. Students must register for both a lecture section and a laboratory section. (3 lecture)
Prerequisite(s): BIOL 115 and CHEM 115
Corequisite(s): BIOL 117L
Pre/Corequisite(s): CHEM 116
- BIOL 117L ~INTRO PHYSIOLOGY LAB** **0 Credit Hours**
 Laboratory portion of BIOL 117. Course emphasizes critical reading of biology literature; dissections of representative animal and plant specimens; organic chemical analyses; formulating research hypotheses; hypothesis testing and scientific writing. (2 lab)
Corequisite(s): BIOL 117
- BIOL 171 NUTRITION & HEALTH** **3 Credit Hours**
 This course will cover basic nutrients needed for human health; nutritional changes and adaptations during various stages of the life cycle will be discussed. Some consideration will be included regarding nutrition for common disorders such as excess weight, athletic training and diseases such as hypertension and diabetes. (3 lecture)
- BIOL 200 MICROBIOLOGY** **3 Credit Hours**
 Designed for students requiring a basic medical microbiology course to meet program requirements or as a science elective. Topics include microorganisms, microbial growth and metabolism, control of microbial populations, microbial resistance and principles of infection and immunity. (3 lecture)
Prerequisite(s): (BIOL 107 and BIOL 108) or (BIOL 101 and BIOL 103 and BIOL 102 and BIOL 104) or (BIOL 115 and BIOL 117)
- BIOL 201 MICROBIOLOGY LAB** **1 Credit Hour**
 Designed to accompany BIOL 200; practical laboratory experiences for students requiring a basic medical micro- biology course to meet program requirements or as a science elective. Topics include staining procedures, observation and study of fixed specimens using the microscope, and culturing and identifying living microorganisms. (2 lab)
Pre/Corequisite(s): BIOL 200
- BIOL 211 ZOOLOGY-ANIMALS AS ORGANISMS** **4 Credit Hours**
 Anatomical and physiological study of invertebrate and vertebrate body systems and processes including taxonomy and evolution. (3 lecture)
Prerequisite(s): (BIOL 101 or BIOL 111) and BIOL 103 and (BIOL 102 or BIOL 112) and BIOL 104 or (BIOL 115 and BIOL 117)
Corequisite(s): BIOL 211L
- BIOL 211L ZOOLOGY-ANIMALS AS ORGAN LAB** **0 Credit Hours**
 (2 lab)
Corequisite(s): BIOL 211
- BIOL 212 BOTANY-PLANTS AS ORGANISMS** **4 Credit Hours**
 Development, structure, function, and evolution of vascular and nonvascular plants; physiological and ecological relationships. (3 lecture)
Prerequisite(s): (BIOL 101 or BIOL 111) and BIOL 103 and (BIOL 102 or BIOL 112) and BIOL 104 or (BIOL 115 and BIOL 117)
Corequisite(s): BIOL 212L

BIOL 212L BOTANY-PLANTS AS ORGANISMS LAB (2 lab) Corequisite(s): BIOL 212	0 Credit Hours
BIOL 219 THE LIVING CELL A study of the structure, function and diversity of cells with an emphasis on gene expression and cellular phenotyping including cell chemistry, energetics and regulation of cell activities. The third course in an integrated sequence. (3 lecture) Prerequisite(s): (BIOL 101 and BIOL 103 and BIOL 102 and BIOL 104) or (BIOL 115 and BIOL 117) and CHEM 115 and CHEM 116 Corequisite(s): BIOL 219L Pre/Corequisite(s): CHEM 233 and CHEM 235	4 Credit Hours
BIOL 219L THE LIVING CELL LABORATORY Laboratory portion of BIOL 219. Course deals with laboratory experiments in cell growth, energetics, enzymes and gene expression. Emphasis will be placed on experimental design, data collection, data interpretation and reporting of findings in the style of a scientific journal. (2 lab) Corequisite(s): BIOL 219	0 Credit Hours
BIOL 293 COOPERATIVE WORK EXPERIENCE (1-4 lecture)	1-4 Credit Hours
BIOL 297 SPECIAL TOPICS (1-4 lecture)	1-4 Credit Hours
BIOL 297L SPECIAL TOPICS:MICRO LAB (3 lab)	3 Credit Hours
BIOL 299 INDEPENDENT STUDY (1-3 lecture)	1-3 Credit Hours
BIOL 312 INTRO TO MEDICAL BOTANY Survey of the medicinal properties of plants, fungi, algae (protists) and cyanobacteria. The impact of plants and their role in both traditional and modern medicine; toxins and nutrients will be studied. The history of herbal medicine and alternative medicinal practices around the world will be observed. (3 lecture) Prerequisite(s): (BIOL 101 and BIOL 103) or BIOL 115	3 Credit Hours
BIOL 371 PRINCIPLES OF GENETICS Introduction to genetics principles, including common terms used in genetics, basic concepts (DNA structure & function, Mendelian genetics, genetics of eukaryotes and prokaryotes, recombinant DNA technology), and practical experience in techniques used in genetics research. Prerequisite(s): (BIOL 101 and BIOL 103 and BIOL 102 and BIOL 104 and CHEM 115) or (BIOL 115 and BIOL 117 and MATH 126) Corequisite(s): BIOL 371L	4 Credit Hours
BIOL 371L PRIN OF GENETICS LAB (3 lab) Corequisite(s): BIOL 371	0 Credit Hours
BIOL 393 COOPERATIVE WORK EXPERIENCE	1-12 Credit Hours
BIOL 397 SPECIAL TOPICS (1-6 lecture)	1-6 Credit Hours
BIOL 397L SPECIAL TOPICS LAB (1 lab)	1 Credit Hour
BIOL 399 INDEPENDENT STUDY (1-3 lecture)	1-3 Credit Hours
BIOL 436 GENERAL ANIMAL PHYSIOLOGY In-depth, current treatment of physiological principles which operate at various levels of biological organization in animals of diverse taxonomic relationships, with emphasis on vertebrate physiology. (3 lecture) Prerequisite(s): (BIOL 101 and BIOL 103 and BIOL 102 and BIOL 104) or (BIOL 115 and BIOL 117) and MATH 126	3 Credit Hours
BIOL 461 PRINCIPLES OF EVOLUTION Introduction to biologic evolution, including genetic change, the history and diversity of life, natural selection and other mechanisms of evolution, population studies, speciation, extinction, co-evolution, group behavior, and human evolution. (3 lecture) Prerequisite(s): (BIOL 101 and BIOL 103 and BIOL 102 and BIOL 104) or (BIOL 115 and BIOL 117) and MATH 126	3 Credit Hours