BIOLOGY
Department of Biology and Medical Laboratory Technology

BIO 11  2 lect 4 lab 4 cr
General Biology I
Chemical basis of life; cellular structure, function and reproduction; photosynthesis and cell respiration; human anatomy and physiology; plant structure and function.
Prerequisites: MTH 05 and RDL 02 and ENG 02 if required.

BIO 12  2 lect 4 lab 4 cr
General Biology II
Continuation of BIO 11 with emphasis on plant and animal development; Mendelian and molecular genetics; evolution; animal and plant diversity; and ecology.
Prerequisite: BIO 11.

BIO 15  2 lect 4 lab 4 cr
Zoology
The diversity of the animal kingdom with emphasis on ecology, behavior, and phylogeny with medical and economic implications for humanity
Prerequisite: BIO 11.

BIO 21  3 lect 3 lab 4 cr
The Human Body
Anatomy and physiology of the integumentary, digestive, nervous, circulatory, excretory, respiratory, endocrine and reproductive systems of the human body; special senses.
Prerequisites: RDL 02 and ENG 02 if required.

BIO 22  2 lect 2 cr
Medical Terminology
Acquaintance with medical concepts, medical terms and scientific principles; various ailments and diseases; tests used in their analyses; treatments and therapeutic techniques for alleviation and cure.
Prerequisites: RDL 02 and ENG 02 if required.

BIO 23  3 lect 3 lab 4 cr
Human Anatomy and Physiology I
An integrated lab-lecture method for the study of the structure and function of the human organism. Includes basic chemistry, cellular anatomy and physiology, tissues, integumentary, skeletal, muscular, nervous and endocrine systems.
Prerequisites: MTH 05 and RDL 02 and ENG 02 if required.
BIO 24  3 lect 3 lab 4 cr
Human Anatomy and Physiology II
An integrated lab-lecture method for the study of the structure and function of the human organism. Includes cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive systems.
Prerequisite: BIO 23

BIO 28  3 lect 3 lab 4 cr
Microbiology and Infection Control
Introduction to microbial structure, function and reproduction. Introduces the medical aspects of bacteriology, mycology, parasitology, virology, serology, immunology, epidemiology, and infection control.
Prerequisites: BIO 11 and BIO 12 or BIO 23 and BIO 24

BIO 44  2 lect 4 lab 4 cr
Diagnostic Microbiology
Advanced study of microorganisms with emphasis on diagnostic techniques for identifying pathogens. Included are morphological, cultural, biochemical, serological methods, and antibiotic testing.
Prerequisite: BIO 28 or BIO 43 and departmental approval.

BIO 46  1 lect 3 lab 2 cr
Clinical Techniques for Medical Personnel I
Introduction to the physician’s office, medical records, measurement of vital signs, electrocardiograph, preparation of the exam room and medical instruments, x-ray and radiograph methods
Prerequisites: BIO 18 or BIO 21, and BIO 22.

BIO 47  1 lect 3 lab 2 cr
Clinical Techniques for Medical Personnel II
Clinical laboratory techniques for a medical office laboratory including sterilization and disinfection techniques, analysis of blood, urine and microbiology specimens. Use and care of the microscope and other laboratory instruments.
Prerequisites: BIO 18 and BIO 22; or BIO 21 and BIO 22; or BIO 11.

BIO 50  2 lect 2 lab 3 cr
Biology, Bioethics and Law
Basic concepts on structure and function of the human body in conjunction with legal definitions and decisions, and ethical interpretations concerning biological/medical technology. Course includes material on contraception and sterilization, abortion, genetics, DNA manipulations, artificial insemination, in vitro fertilization, surrogate motherhood, death and dying, human experimentation, organ transplantation.
Prerequisites: RDL 02 and ENG 02 if required.
BIO 52  3 lect 3 lab 4 cr
Immunology
Principles of humoral and cellular immunity. Immunological techniques for identification of infectious diseases and immune disorders; introduction to immunohematology (blood cell antigens) and tissue typing. 
**Prerequisites:** BIO 12 and CHM 18 and departmental approval.

BIO 55  3 lect 3 cr
Genetics
A survey of the major principles and concepts of the science of heredity. The course reviews classical Mendelian and non-Mendelian genetics. It covers modern genetics including the molecular basis of heredity, gene regulation, developmental genetics, population genetics and biotechnology. 
**Prerequisites:** BIO 12.

BIO 81  1 lect 2 lab 2 cr
Introduction to Medical Laboratory Technology
This course is designed to preview the MLT curriculum coursework and for students to obtain a variety of laboratory skills needed in other MLT courses. It introduces the students to the professional and technical responsibilities of the Medical Laboratory Technician (MLT). Professional topics include hospital and laboratory organization, legal and ethical issues, quality assessment and lab math. Preliminary topics in the major technical areas of laboratory science (Microbiology, Immunology/ Serology, Hematology, Immunohematology, and Clinical Chemistry) are explored. The course also includes instruction and practice in phlebotomy techniques. 
**Prerequisites:** BIO 11, MTH 13, CHM 17 and departmental approval.  
**Corequisites:** BIO 12, CHM 18.

BIO 82  2 lect 4 lab 4 cr
Clinical Hematology & Coagulation
Principles and practice of clinical laboratory techniques in hematology and coagulation: complete blood count, normal and abnormal smears, sedimentation rate and coagulation studies. Emphasis on both manual and automated techniques, principles and diagnostic implications. 
**Prerequisites:** BIO 12, BIO 81 and CHM 18 and departmental approval.

BIO 83  2 lect 4 lab 4 cr
Clinical Chemistry
**Prerequisites:** BIO 81, CHM 18 and MTH 13 and departmental approval.
BIO 85  1 lect 2 lab 2 cr
Immunology/Serology
This course is an introduction to the theory and application of basic immunology, including the immune response, principles of antigen-antibody reactions, and the principles of serological procedures. The class includes other areas of study concerning the fundamentals of immunity and the immune response such as antibody structure and interactions, the complement system, hypersensitivity reactions and disorders of the immune response.
A student laboratory is used for experiences in fundamental immunology.serology laboratory techniques.
Prerequisites: BIO 12, BIO 81, CHM 18 and departmental approval

BIO 86  1 lect 3 lab 3 cr
Immunohematology
Immunohematology is the study of blood antigens and antibodies. The course covers principles, procedures and the clinical significance of tests results. Topics in blood banking also include blood group systems, pre-transfusion testing, and adverse effects of transfusions, donor selection, blood components and hemolytic disease of the newborn. The course also explores methods for blood processing, handling, and storage of blood components, and examines cross matching and antibody identification procedures. The class utilizes a student laboratory for experiences in fundamental immunohematology laboratory techniques, including quality control and safety.
Prerequisites: BIO 12, BIO 81, CHM 18 and departmental approval

BIO 87  1 lec 2 lab 2 cr
Urinalysis and Body Fluids
This course introduces urinalysis and body fluid analysis, including the anatomy and physiology of the kidney, and physical, chemical and microscopic examination of urine, cerebrospinal fluid and other body fluids. The course utilizes a student laboratory for experiences in basic urinalysis and body fluids analysis
Prerequisites: BIO 11, MTH 13, CHM 17 and department approval
Corequisites: BIO 12, CHM 18

BIO 90  4 cr
Clinical Internship
This 500 hour course is designed to provide the didactic and clinical experience necessary to acquire knowledge in Clinical Laboratory Science. Students practice clinical skills at local cooperating hospitals or private laboratories under the guidance of bench technologists and supervisors. They are evaluated by the person in charge of the laboratory and the faculty member assigned to the course to meet established clinical objectives. Students rotate through the following clinical areas: Hematology, Coagulation, Urinalysis, Serology / Immunology, Blood Bank, Microbiology, and Clinical Chemistry.
Prerequisite: Completion of all Medical Laboratory Technology courses and approval by the MLT Program Director.