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Medical Laboratory Technician Program

Course Curriculum

Semester 01 (Tuition: \$3,010)

Course # Course Title Credits

10-513-110 Basic Lab Skills 1

Credits: 1 Lecture Hours: 9 Lab Hours: 18

This course explores health career options and the fundamental principles and procedures performed in the clinical laboratory. You will utilize medical terminology and basic laboratory equipment. You will follow required safety and infection control procedures and perform simple laboratory tests.

10-513-111 Phlebotomy 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36

This course provides opportunities for learners to perform routine venipuncture, routine capillary puncture, and special collection procedures.

10-513-113 QA Lab Math

Credits: 1 Lecture Hours: 18

This course focuses on performing the mathematical calculations routinely used in laboratory settings. You will explore the concepts of quality control and quality assurance in the laboratory.

10-513-115 Basic Immunology Concepts 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36

This course provides an overview of the immune system including laboratory testing methods for diagnosis of immune system disorders, viral and bacterial infections. Corequisites: Basic Lab Skills (10-513-110) Pre/Corequisites: General Anatomy & Physiology (10-806-177)

10-801-136 English Composition 1

Credits: 3 Lecture Hours: 54

This course is designed for learners to develop knowledge and skills in all aspects of the writing process. Planning, organizing, writing, editing and revising are applied through a variety of activities. Students will analyze audience and purpose, use elements of research and format documents using standard guidelines. Individuals will develop critical reading skills through analysis of various written documents.

10-806-177 General Anatomy & Physiology 4

Credits: 4 Lecture Hours: 54 Lab Hours: 36

Students examine basic concepts of human anatomy and physiology as they relate to health sciences. Students use a body systems approach to analyze the interrelationships between structure and function at the gross and microscopic levels of organization of the entire human body. They apply basic concepts of whole body anatomy and physiology to make informed decisions as health care professionals and to communicate professionally with colleagues and patients.

10-806-186 Intro to Biochemistry

4

Credits: 4 Lecture Hours: 54 Lab Hours: 36

Provides students with skills and knowledge of organic and biological chemistry necessary for application within Nursing and other Allied Health careers. Emphasis is placed on recognizing the structure, physical properties and chemical reactions of organic molecules, body fluids, and acids. Additional emphasis is placed on biological functions and their relationships to enzymes, proteins, lipids, carbohydrates and DNA.

Prerequisites: Fundamentals of Chemistry (10-806-109)

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Semester 02 (Tuition: \$3,210)

Course # **Course Title Credits** 10-513-109 4 Blood Bank

Credits: 4 Lecture Hours: 36 Lab Hours: 72

Focuses on blood banking concepts and procedures including blood typing, compatibility testing, work ups for adverse reaction to transfusions, disease states and donor activities. Prerequisites: Basic Immunology Concepts (10-513-115)

10-513-114 2 Urinalysis

Lecture Hours: 18 Lab Hours: 36

This course prepares you to perform a complete urinalysis which includes physical, chemical, and microscopic analysis. You will explore renal physiology and correlate urinalysis results with clinical conditions. Prerequisites: Basic Lab Skills (10-513-110) and General Anatomy & Physiology (10-806-177)

10-513-120 **Basic Hematology** 3

Credits: 3 Lecture Hours: 18 Lab Hours: 72

This course covers the theory and principles of blood cell production and function and introduces you to basic practices and procedures in the hematology laboratory. Prerequisites: Basic Lab Skills (10-513-110) and General Anatomy & Physiology (10-806-177)

1 10-513-121 Coagulation

Credits: 1 Lecture Hours: 0 Lab Hours: 36

This course introduces the theory and principles of coagulation and explores mechanisms involved in coagulation disorders. Emphasis is placed upon laboratory techniques used to diagnose disease and monitor treatment. Prerequisites: Basic Lab Skills (10-513-110) and General Anatomy & Physiology (10-806-177)

10-801-196 Oral/Interpersonal Communication 3

Lecture Hours: 54 Credits: 3

Students demonstrate competency in speaking, verbal and nonverbal communication, and listening skills through individual presentations, group activities and other projects.

10-806-197 Microbiology 4

Credits: 4 Lecture Hours: 54 Lab Hours: 36

Students examine microbial structure, metabolism, genetics, growth, and the relationship between humans and microorganisms. Students address disease production, epidemiology, host defense mechanisms, and the medical impact of microbes. Students examine the role of microbes in the environment, industry, and biotechnology. Prerequisites: General Anatomy & Physiology (10-806-177) or Anatomy and Physiology I (20-806-207)

10-809-172 Introduction to Diversity Studies * OR *

Credits: 3 Lecture Hours: 54

Students draw from several disciplines to reaffirm the basic American values of justice and equality by learning a basic vocabulary, a history of immigration and conquest, principles of transcultural communication, legal liability and the value of aesthetic production to increase the probability of respectful encounters among people. In addition to an analysis of majority/minority relations in a multicultural context, the topics of ageism, sexism, gender differences, sexual orientation, the disabled and the American Disability Act (ADA) are explored. Ethnic relations are studied in global and comparative perspectives.

10-809-196 Introduction to Sociology

3

Credits: 3 Lecture Hours: 54

Students explore the basic concepts of sociology: culture, socialization, social stratification, multi-culturalism, and the five institutions, including family, government, economics, religion, and education. Other topics include demography, deviance, technology, environment, social issues, social change, social organization, and workplace issues.

10-809-188 Developmental Psychology * OR *

Credits: 3 Lecture Hours: 54

Developmental Psychology is the study of human development throughout the lifespan. This course explores developmental theory and research with an emphasis on the interactive nature of the biological, cognitive, and psychosocial changes that affect the individual from conception to death. Application activities and critical thinking skills will enable students to gain an increased knowledge and understanding of themselves and others.

10-809-198 Introduction to Psychology

3

Credits: 3 Lecture Hours: 54

Students survey the multiple aspects of human behavior. This involves a survey of the theoretical foundations of human functioning in such areas as learning, motivation, emotions, personality, deviance and pathology, physiological factors, and social influences. The student forms an insightful understanding of the complexities of human relationships in personal, social, and vocational settings

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Semester 04 (Tuition: \$2,270)

Course # Course Title Credits

10-513-116 Clinical Chemistry

4

Credits: 4 Lecture Hours: 36 Lab Hours: 72

Introduces clinical chemistry techniques and procedures for routine analysis using photometric, potentiometric and separation techniques. Topics in this course include pathophysiology and methodologies for carbohydrates, lipids, proteins, renal function and blood gas analysis. Additional topics include hepatic, cardiac markers, tumor markers, endocrine function, miscellaneous body fluids, toxicology, enzymes and electrolytes. Prerequisites: Intro to Biochemistry (10-806-186)

10-513-130 Advanced Hematology

2

Credits: 2 Lecture Hours: 18 Lab Hours: 36

This course explores mechanisms involved in the development of hematological disorders. Emphasis is placed upon laboratory techniques used to diagnose disorders and monitor treatment. Prerequisites: Basic Hematology (10-513-120)

Credits: 4 Lecture Hours: 18 Lab Hours: 108

This course presents the clinical importance of infectious diseases with emphasis upon the appropriate collection, handling and identification of clinically relevant bacteria. Disease states, modes of transmission and methods of prevention and control, including antibiotic susceptibility testing will also be discussed. Prerequisites: Microbiology (10-806-197)

10-513-180 Body Fluids Analysis

1

Credits: 1 Lecture Hours: 9 Lab Hours: 18

Covers principles and procedures related to laboratory analysis of body fluids, including serous fluids, cerebral spinal fluid, synovial fluid, and bronchoalveolar lavage (BAL) fluid. The major emphasis of the course is hematologic analysis, including cell counts and differentials. The completion of case studies allows the student to correlate laboratory results with disease states. Prerequisites: Basic Hematology (10-513-120)

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Semester 05 (Tuition: \$2,190)

Course #Course TitleCredits10-513-140Advanced Microbiology2

Credits: 2 Lecture Hours: 36

This course provides an overview of acid fast organisms, fungi, parasites, and anaerobic bacteria. The organisms, their pathophysiology, epidemiology, the diseases and conditions that they cause, laboratory methods of handling, culturing and identification will be discussed. Prerequisites: Clinical Microbiology (10-513-133)

10-513-141 Pre-Clinical Experience

2

Credits: 2 Lecture Hours: 36

This course provides a comprehensive theory review prior to the start of the clinical experience. Students also engage in professional development activities including communication skills and continuing education requirements. Prerequisites: Clinical Microbiology (10-513-133)

10-513-151 Clinical Experience 1

3

Credits: 3 Lecture Hours: 0 Occupational Hours: 216

In this clinical you will practice the principles and procedures of laboratory medicine as an entry level Clinical Laboratory Technician in a clinical laboratory setting. You will learn to operate state of the art instruments and report results on Laboratory Information Systems. Prerequisites: Clinical Chemistry (10-513-116) and Advanced Hematology (10-513-130)

10-513-152 Clinical Experience 2

4

Credits: 4 Lecture Hours: 0 Occupational Hours: 288

Provides continuing practice for the principles and procedures of laboratory medicine as an entry level Clinical Laboratory Technician in a clinical laboratory setting. You will learn to operate state of the art instruments and report results on laboratory Information Systems. Prerequisites: Clinical Chemistry (10-513-116) and Advanced Hematology (10-513-130)

10-513-170 Introduction to Molecular Diagnostics

2

Credits: 2 Lecture Hours: 36

Introduces the principles and application of molecular diagnostics in the clinical laboratory. Prerequisites: Clinical Microbiology (10-513-133)

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Estimated Total Tuition*: \$11,660 Additional costs for physical, uniforms, of

Additional costs for physical, uniforms, and travel. For detailed costs, contact <u>Health Programs Support</u>.