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**Medical Laboratory Technician Program**

**Course Curriculum**

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| **Semester 01**   (Tuition: $2,730  Books: $650-$1,100) | | |
| **Course #** | **Course Title** | **Credits** |
| 10-513-110 | Basic Lab Skills | 1 |
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| Credits: 1 Lecture Hours: 0 Lab Hours: 36 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 |
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| 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 | 1 |
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| 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 |
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| 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. Co-requisite: Basic Lab Skills (10-513-110) General A&P (10-806-177) | | |
| 10-801-195 | Written Communication | 3 |
|  | | |
| Credits: 3 Lecture Hours: 54 Students develop writing skills through prewriting, drafting, revising, and editing. Students complete writing assignments designed to help the learner analyze audience and purpose, research and organize ideas, and format and design documents based on subject matter and content. Students develop critical reading and thinking skills through the analysis of a variety of 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. Prerequisites: HESI Score = 76, and High school chemistry or college chemistry with a minimum grade of C, or Fundamentals of Chemistry (10-806-109) | | |
| 10-806-186 | Intro to Biochemistry | 4 |
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| 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: HESI Score = 75 and high school chemistry or college chemistry with a minimum grade of C, or Fundamentals of Chemistry (10-806-109) | | |
|  |  | **17** |
| **Semester 02**   (Tuition: $2,880  Books: $650-$950) | | |
| **Course #** | **Course Title** | **Credits** |
| 10-513-109 | Blood Bank | 4 |
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| 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 | Urinalysis | 2 |
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| Credits: 2 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. Prerequisite: Basic Lab Skills (10-513-110) General A&P (10-806-177) | | |
| 10-513-120 | Basic Hematology | 3 |
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| 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. Prerequisite: Basic Lab Skills (10-513-110) General A&P (10-806-177) | | |
| 10-513-121 | Coagulation | 1 |
|  | | |
| 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. Prerequisite: Basic Lab Skills (10-513-110) General A&P (10-806-177) | | |
| 10-801-196 | Oral/Interpersonal Communication | 3 |
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| Credits: 3 Lecture Hours: 54 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 |
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| 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. Prerequisite: General Anatomy and Physiology (10-806-177) with a "C" or better | | |
|  |  | **17** |
| **Semester 03**   (Tuition: $890  Books: $170-$360) | | |
| **Course #** | **Course Title** | **Credits** |
| 10-809-172 | Introduction to Diversity Studies *\* OR \** |  |
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| 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 | Intro to Sociology | 3 |
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| 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 \** |  |
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| 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 | Intro to Psychology | 3 |
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| 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 | | |
|  |  | **6** |
| **Semester 04**   (Tuition: $2,440  Books: $300-$430) | | |
| **Course #** | **Course Title** | **Credits** |
| 10-513-116 | Clinical Chemistry | 4 |
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| 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. Prerequisite: Basic Hematology (10-513-120) | | |
| 10-513-133 | Clinical Microbiology | 4 |
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| 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. Prerequisite: 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. Prerequisite: Basic Hematology (10-513-120) | | |
| Elective | Elective 04 | 3 |
|  |  | **14** |
| **Semester 05**   (Tuition: $2,060  Books: $190-$300) | | |
| **Course #** | **Course Title** | **Credits** |
| 10-513-140 | Advanced Microbiology | 2 |
|  | | |
| 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. Prerequisite: Clinical Microbiology (10-513-133) | | |
| 10-513-141 | Pre-Clinical Experience | 2 |
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| Credits: 2 Lecture Hours: 18 Lab Hours: 36 This course provides opportunities to practice the principles and procedures of laboratory medicine in a clinical setting. Students learn to operate state of the art instruments and report results on Laboratory Information Systems. Clinical content is reviewed and students run a mock-clinical laboratory from specimen acquisition to result reporting. Resume writing and interviewing techniques are also discussed. Prerequisite: Clinical Microbiology (10-513-133) | | |
| 10-513-151 | Clinical Experience 1 | 3 |
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| 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: Advanced Hematology (10-513-130) Clinical Chemistry (10-513-132) | | |
| 10-513-152 | Clinical Experience 2 | 4 |
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| 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. Prerequisite: Advanced Hematology (10-513-130) Clinical Chemistry 2 (10-513-132) | | |
| 10-513-170 | Introduction to Molecular Diagnostics | 2 |
|  | | |
| Credits: 2 Lecture Hours: 18 Lab Hours: 36 Introduces the principles and application of molecular diagnostics in the clinical laboratory. Prerequisites: Basic Lab Skills (10-513-110) | | |
|  |  | **13** |
| **Total Credits: 67** | | |
| **Estimated Total Tuition: $11,000** | | |
| *Additional costs for physical, uniforms, and travel. For detailed costs, contact*[*Health Programs Support*](https://www.swtc.edu/student-resources/learning-resources/health-programs-support)*.* | | |