

CLINICAL LABORATORY SCIENCES BACHELOR OF SCIENCE DEGREE PROGRAM

Clinical laboratory testing plays a crucial role in the detection, diagnosis, and treatment of disease. Medical laboratory scientists, also referred to as clinical laboratory scientists or medical technologists, perform most of these tests. Clinical laboratory personnel examine and analyze body fluids, and cells. They look for bacteria, parasites, and other microorganisms; analyze the chemical content of fluids; match blood for transfusions; and test for drug levels in the blood that show how a patient is responding to treatment. Technologists also prepare specimens for examination, count cells, and look for abnormal cells in blood and body fluids. They use microscopes, cell counters, and other sophisticated laboratory equipment. They also use automated equipment and computerized instruments capable of performing a number of tests simultaneously. After testing and examining a specimen, they analyze the results and relay them to physicians.

With increasing automation and the use of computer technology, the work of technologists has become less hands-on and more analytical. Clinical laboratory technologists perform complex chemical, biological, hematological, immunologic, microscopic, and bacteriological tests. Technologists microscopically examine blood and other body fluids. They make cultures of body fluid and tissue samples, to determine the presence of bacteria, fungi, parasites, or other microorganisms. Technologists analyze samples for chemical content or a chemical reaction and determine concentrations of compounds such as blood glucose and cholesterol levels. They also type and cross match blood samples for transfusions.

Clinical laboratory technologists and technicians held about 328,100 jobs in 2008. More than half of jobs were in hospitals. Most of the remaining jobs were in offices of physicians and in medical and diagnostic laboratories. A small proportion was in educational services and in all other ambulatory healthcare services.

Employment of clinical laboratory workers is expected to grow by 14 percent between 2008 and 2018, faster than the average for all occupations. The volume of laboratory tests continues to increase with both population growth and the development of new types of tests. Technological advances will continue to have opposing effects on employment. On the one hand, new, increasingly powerful diagnostic tests and advances in genomics — the study of the genetic information of a cell or organism — will encourage additional testing and

spur employment. On the other hand, research and development efforts targeted at simplifying and automating routine testing procedures may enhance the ability of non-laboratory personnel—physicians and patients in particular—to perform tests now conducted in laboratories. Although hospitals are expected to continue to be the major employer of clinical laboratory workers, employment is expected also to grow rapidly in medical and diagnostic laboratories, offices of physicians, and all other ambulatory healthcare services.

Job opportunities are expected to be excellent because the number of job openings is expected to continue to exceed the number of jobseekers. Willingness to relocate will further enhance one's job prospects.

Median annual wages of medical and clinical laboratory technologists were \$56,130 in May 2010. The middle 50 percent earned between \$47,130-66,370. The lowest 10 percent earned less than \$38,810, and the highest 10 percent earned more than \$76,780.



PROGRAM OVERVIEW

The Bachelor of Science in Clinical Laboratory Sciences degree program is a program that combines core curriculum, basic science, and basic clinical laboratory science courses throughout the first three years. The fourth year of the program comprises advanced clinical laboratory science courses and clinical practicums. Students may choose from two options in the bachelor's degree program: general clinical laboratory sciences and premedical. Those students who are interested in applying to medical school after completing the baccalaureate degree or post-baccalaureate certificate in clinical laboratory sciences should consider adding the courses recommended for admission to medical school.

Although the options differ in science, mathematics, and other program requirements, the professional phase CLS coursework is the same. The general option consists of a minimum of 130.5 semester credit hours and the pre-medical option consists of a minimum of 140.5 semester credit hours. Graduates of the CLS bachelor's degree program are eligible to take the national certification examinations given by the Board of Certification (BOC) of the American Society for Clinical Pathology (ASCP), 33 West Monroe St., Suite 1600, Chicago, IL, 60603, 1-800-267-2727.

ADMISSION REQUIREMENTS & PREREQUISITES

- Completion of the [Texas Core Curriculum](#) and a minimum of 15 semester credit hours of program requirements (below) in science and mathematics
- Overall GPA of 2.5 and Science GPA of 2.5 (on a 4.0 scale) and no grade less than **C** in science courses
- All science and mathematics courses must be designated for science majors
- Official transcripts from each college and university attended
- Two reference forms completed by former instructors (preferably science instructors) or employers
- Completion of [Texas Common Application](#)

PROGRAM REQUIREMENTS

- Biology I and laboratory, 4.0 hours
- Biology II, 3.0 hours
- Microbiology and laboratory, 4.0 hours
- Biochemistry (upper division), 3.0 hours
- General Chemistry I & II with labs, 8.0 hours
- Organic Chemistry I and laboratory, 5.0 hours
- General Physiology or Human Physiology (upper division), 3.0 hours
- Genetics, 3.0 hours
- Genetics laboratory (recommended), 2.0 hours
- Precalculus, 3.0 hours
- Statistics, 3.0 hours

APPLICATION PROCESS

Applicants are encouraged to seek advisement from their college counselors or the Health Professions Welcome Center at (866) 802-6288 (toll-free) or (210) 567-8569. For additional information, see the policies and procedures in the School of Health Professions section of the *UT Health Science Center Catalog*.

Applicants who are enrolled in college courses at the time of application should submit an official transcript showing courses in progress. An updated transcript must be submitted upon completion of the courses. All application materials, application fee, official transcripts, and supporting documents must be submitted to the Application Center by:

- **June 1 for fall admission**
- **October 1 for spring admission**

PROGRAM COSTS

Tuition, equipment, required fees and expenses for the program are detailed in the *HSC Catalog*. There is no on-campus housing at the HSC and program expenses do not reflect day-to-day living expenses. In addition to the required tuition and fees of approximately \$16,427 (in-state students), costs for other expenses such as textbooks, course manuals, equipment, scrubs/uniforms, and supplies are approximately \$1,873. Travel and living expenses for local and out-of-town clinical practicums are not included in this estimate.

BACHELOR OF SCIENCE IN CLS CURRICULUM

	Semester Credit Hours
CLSC 3000 - Introduction to Clinical Laboratory Sciences	2.0
CLSC 3001 - Phlebotomy Practicum	0.5
CLSC 3003 - Parasitology and Mycology Laboratory	1.0
CLSC 3004 - Parasitology and Mycology	2.0
CLSC 3010 - Body Fluids	2.0
CLSC 3011 - Quality Assurance in the Clinical Laboratory	1.0
CLSC 3033 - Medical Microbiology	3.0
CLSC 3034 - Medical Microbiology Laboratory	2.0
CLSC 3041 - Seminar in Geriatrics	0.5
CLSC 3051 - Hematology	3.0
CLSC 3052 - Hematology Laboratory	2.0
CLSC 3060 - Immunohematology	2.0
CLSC 3064 - Immunohematology Laboratory	2.0
CLSC 3065 - Clinical Immunology	3.0
CLSC 3071 - Diagnostic Immunology Laboratory	0.5
CLSC 3081 - Clinical Chemistry	2.5
CLSC 3082 - Clinical Chemistry Laboratory	1.5
CLSC 4006 - Professional Issues	1.0
CLSC 4033 - Advanced Medical Microbiology	2.0
CLSC 4035 - Introduction to Molecular Diagnostics	1.5
CLSC 4037 - Microbiology Practicum	4.0
CLSC 4053 - Advanced Hematology	2.0
CLSC 4055 - Advanced Immunohematology	2.0
CLSC 4057 - Hematology Practicum	4.0
CLSC 4067 - Immunohematology Practicum	4.0
CLSC 4070 - Immunology Practicum	2.0
CLSC 4083 - Advanced Clinical Chemistry	3.0
CLSC 4087 - Chemistry Practicum	4.0
CLSC 4092 - Management I	1.0
CLSC 4093 - Management II: Techniques for CLS	1.5
CLSC 4192 - Research I	0.5
CLSC 4193 - Research II	0.5
Clinical Laboratory Sciences Total	63.5

CONTACT INFORMATION

School of Health Professions Welcome Center

E-mail: SHPwelcome@uthscsa.edu

Phone: 210-567-8744 or toll free 1-866-802-6288

<http://SHPwelcome.uthscsa.edu>

Department of Clinical Laboratory Studies

Phone: (210) 567-8860

<http://www.uthscsa.edu/shp/cls>

Office of Student Services Application Center

E-mail: AppCenter@uthscsa.edu

Phone: 210-567-2633

http://studentservices.uthscsa.edu/prospects_application_center.aspx