

Clinical Laboratory Science Program

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Office: Health Professions Building 350-B
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Degree Program Offered

- BSCLS, major in Clinical Laboratory Science

The Bachelor of Science in Clinical Laboratory Science with a major in Clinical Laboratory Science prepares students to function as clinical laboratory scientists or medical technologists in a wide variety of settings from physician office laboratories to modern tertiary care hospital laboratories. The clinical laboratory scientist can become an indispensable top-level laboratory worker, a supervisor, a specialist, a researcher, or an educator.

The requirements during the first two years of study include courses in biology, chemistry, and mathematics, along with courses in the humanities and social and behavioral sciences. The junior and senior years combine clinical experiences in the affiliated clinical laboratories with advanced academic study in the CLS disciplines.

The program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences. Graduates of the program are eligible to take the national certification examination given by the Board of Registry of the American Society of Clinical Pathologists and/or the National Certification Agency.

Admission Process

Students are selected in the spring semester of their sophomore year for the junior class. Because of the limited number of students that can be accepted for the junior class, students are encouraged to maintain an overall GPA above 2.50. Acceptance into Texas State and declaration as a clinical laboratory science major does not imply that the student will be accepted into the junior class. The criteria for student selection for the junior class includes scholastic ability, particularly in the sciences, and a personal interview, and not on the basis of gender, race, color, religion, veteran status or condition of disability, or national origin. Applications for the junior class must be submitted by March 1. Applicants will be notified of their status by April 1.

Liability Insurance

1. Students who participate in the internship portions of the Clinical Laboratory Science program are required to purchase liability insurance, or demonstrate proof that they are insured.
2. Students may obtain information on liability insurance from the program office.

Immunization Requirements

It is a policy of the College of Health Professions that each student must provide a Health Report completed by a physician, and must take certain immunizations before the student can be placed in a clinical or internship assignment. Information on these requirements and forms to be supplied may be obtained through the program office.

Background Check

The CLS program requires that students pass a criminal background check before placement in a clinical rotation. The background check is completed prior to clinical assignments. Please refer to <http://www.txstate.edu/cls/backgroundcheck.htm> for more information.

Bachelor of Science in Clinical Laboratory Science
Major in Clinical Laboratory Science
 Minimum required: 137 semester hours

General Requirements:

1. Any student who did not complete at least two years of the same foreign language in high school is required to take 6-8 hours of the same foreign language.
2. Any student who did not complete one year of general computer science (literacy) course in high school is required to take a placement course, CLEP, or college course work.
3. See University College section of the catalog for course options that satisfy literature, natural science, and social science components.

Freshman Year	Hours	Sophomore Year	Hours
BIO 1430, 1431.....	8	BIO 2430, 2450, 2400 or 2440	12
CHEM 1341, 1141, 1342, 1142	8	CHEM 2130, 2330, 2150, 2350.....	8
ENG 1310, 1320	6	COMM 1310	3
MATH 1315.....	3	ENG Literature.....	3
US 1100	1	PHIL 1305 or 1320.....	3
HIST 1310, 1320.....	6	POSI 2310, 2320	6
PFW two courses	2		
Total	34	Total	35
Junior Year	Hours	Senior Year	Hours
ART, DAN, MU, or TH 2313	3	CLS 4322, 4326.....	6
HP 3302	3	CLS 4227, 4318, 4440, 4460.....	13
CLS 3305, 3410, 3323, 3412, 3424.....	18	CLS 4340, 4341, 4370, 4463	13
Social Science Component.....	3	CLS 4225, 4361, 4464.....	9
Total	27	Total	41

Courses in Clinical Laboratory Science (CLS)

3305 Introduction to Clinical Laboratory Techniques. (2-3) Clinical Laboratory Science students will be introduced to techniques, procedures, and instrumentation commonly used in clinical laboratories.

3323 Clinical Microscopy and Analysis of Body Fluids. (2-3) Study of body fluids present in the various anatomical compartments of the body as they differ in health and disease. Physical and chemical tests, and microscopic examination of select body fluids are performed.

3410 Clinical Chemistry I. (3-4) Designed to acquaint the clinical laboratory science student with some of the concepts, techniques, procedures, and instrumentation used in clinical chemistry.

3412 Hematology/Coagulation I. (3-4) Qualitative and quantitative evaluation of formed elements of the blood and studies in coagulation abnormalities. Prerequisites: BIO 2340, 2350, or 2430.

3424 Clinical Immunology. (3-3) Principles of immune response and underlying immunologic procedures of diagnostic value are discussed. Lectures and laboratory emphasize detection, identification, nature of antigens and antibodies, and the antigen-antibody reactions encountered.

(WI) **4225 Laboratory Management and Supervision.** (2-0) Lectures and discussions of general principles of management and supervision of the clinical laboratory and its personnel.

(WI) **4227 Introduction to Clinical Practice.** (2-0) Discussion of professional and technical requirements for clinical laboratory science students and their role and responsibilities as a unit of the health care team.

4318 Hematology II. (2-3) In-depth study of theoretical and practical aspects of clinical hematology and hemostasis with emphasis on principles, methodology, problems encountered, and clinical applications.

4321 Directed Study in Clinical Laboratory Science. (2-6) An in-depth study of a narrow range of topics or a related problem in the clinical laboratory sciences. Topics to be announced; may be repeated for credit when topics vary.

(WI) **4322 Computer Applications in Clinical Laboratory Operations, Management and Research.** (2-3) Study of clinical laboratory computer systems and programs utilized in quality assurance, data management and statistical analysis.

4326 Medical Parasitology. (2-3) Lecture and laboratory instruction in medically important parasites producing disease in humans with emphasis on epidemiology, life cycles, identifying characteristics, and pathology of these parasites.

4340 Clinical Microbiology II. (2-3) Study of medically important fungi, viruses, chlamydiae, rickettsiae, and advanced topics in clinical microbiology. Automated identification of microorganisms, database management, and epidemiologic techniques will be discussed.

4341 Molecular Diagnostics. (2-3) This course consists of an introduction to the principles, methodologies and applications of molecular diagnostic procedures used in clinical laboratories. Emphasis is placed on the procedures used in the identification of infectious agents that cause human disease, in the diagnosis of inherited diseases, and the diagnosis of cancer.

4342 Clinical Diagnosis of Emerging Infectious Diseases. (3-0) This lecture course focuses on the clinical and laboratory diagnosis of emerging and reemerging infectious diseases. Selected diseases may include historically known agents such as influenza, HIV, and tuberculosis; as well as Ebola, West Nile Virus, SARS, and anthrax. Prerequisite: BIO 2400 or 2440. (MC)

4343 Bioterrorism, A Clinical and Laboratory Perspective. (3-0) This lecture course examines the impact of bioterrorism through the perspectives of the clinical laboratory and the role of medical workers in preparedness and response. Speakers with professional responsibilities in areas of public health response, select agent biology, diagnosis and disease management, and public policy will share their perspectives on bioterrorism. Prerequisite: BIO 2400 or 2440.

4344 The Molecular Aspects of Cancer. (3-0) Examines the molecular basis of cancer, and how environmental and hereditary factors cooperate to elicit the transformed phenotype and promote cancer progression. Emphasizes specific cancer types for which a molecular basis has been identified. Both the clinical aspects and experimental strategies that reveal underlying mechanisms are discussed.

(WI) **4361 Research Methods in Clinical Laboratory Science.** (2-3) Directed independent research covering the principles of research and development of clinical laboratory methodology.

4370 Clinical Chemistry II. (2-3) A study of the theoretical and practical aspects of clinical chemistry. Manual and automated laboratory procedures for quantitative analysis of various body fluids.

4440 Clinical Microbiology I. (3-6) Study of pathogenic and non-pathogenic bacteria, fungi, and viruses with special emphasis on methods of isolation from body fluids, cultural and differential biochemical characteristics of body pathogens.

4460 Immunohematology. (3-4) Study of theoretical and practical consideration of major blood groups with emphasis on grouping and typing, antibody detection and identification, compatibility testing and component therapy in blood transfusion service.

4463 CLS Clinical Practice I. (0-16) Structured clinical experience assigned on an individual basis for observation, study, and practical application of techniques and methodology in the clinical laboratory.

4464 CLS Clinical Practice II. (0-16) Continuation of Clinical Laboratory Science Practice I; structured clinical experience assigned on an individual basis for observation, study and practical application of techniques and methodology in the clinical laboratory.