BS in Clinical Laboratory Science

The Clinical Laboratory Science Program (CLS), formerly Medical Technology, is designed to prepare graduates to function as professional members of the health care team. Their services are utilized in hospitals, clinics, and private laboratories, as well as in business and industry. Clinical Laboratory Scientists perform a variety of immunological, biochemical, molecular, and microbiological procedures that aid in the diagnosis, treatment, and prevention of disease. Computerized databases, electronic charting, and sophisticated laboratory techniques such as flow cytometry, DNA, fingerprinting, PCR, and two-dimensional electrophoresis help ensure the accuracy and precision of their work. The University of Texas at El Paso's Clinical Laboratory Science Program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (5600 N. River Rd., Suite 720, Rosemont, IL 60018-5119).

Marketable Skills

- Students will gain skills to perform diagnostic laboratory testing competently and ethically with the purpose contributing to the improvement of the population’s health and wellness.
- Students will have the opportunity to gain the necessary knowledge and experience to qualify for national MLS certification examinations.
- Students will be able to demonstrate and apply their knowledge, skills, and abilities to perform, interpret, and report-out patient clinical laboratory test results as a clinical laboratory scientist.
- Students will gain experience through professional development offered through the program and UTEP EDGE experiences.

Learning Outcomes

- Students will demonstrate entry-level medical laboratory science skills at or before the completion of didactic coursework prior to entering clinical rotations by achieving a minimum of 75% final grade on all classes.
- Second year professional phase students will demonstrate entry-level skills at or before completion of their preceptorship in all three NAACLS enforced learning domains in 4 major areas (microbiology, clinical chemistry, hematology, immunohematology) and 3 minors (serology, body fluids, coagulation) CLS core competency areas by achieving a minimum of 75%final grade on all preceptorship classes.
- Students will be able to demonstrate knowledge, skills, and abilities to perform, interpret, and report-out patient clinical laboratory test results as a clinical laboratory scientist by utilizing their skills and knowledge in community-based health fair capstone projects.

Students completing core and pre-professional courses must apply for the professional phase of the program in the spring semester. The application and application deadlines can be found on the Clinical Laboratory Science department webpage (http://www.utep.edu/chs/cls/). All prerequisite courses must be completed before entering the professional phase of the program in the fall semester. Students are not allowed to take other courses concurrently with upper division, professional-phase CLS courses. Applicants must have a minimum CGPA of 2.5 and a 2.75 GPA in math and sciences and must pass a drug screen and background check. University and clinical faculty may interview all applicants.

A limited number of clinical sites are available; therefore, students are selected in the spring semester to enter the professional phase once a year beginning in the Summer semester. Depending on the number of clinical affiliates available in any one year, a student might be required to attend clinical preceptorships outside the El Paso area at the student’s expense.

Students must complete all lower-division course work prior to enrolling in the professional Clinical Laboratory Science courses. Before enrolling in the clinical practicum, all students must show evidence of professional liability insurance, health insurance, current CPR certification, a recent physical examination, and current immunizations (titers), including hepatitis and influenza vaccinations. Some clinical affiliates may require students to provide proof of immunizations/titers for varicella, hepatitis B, measles, rubella, and rubeola, and twp-step TB proof of medical insurance. To engage in clinical practicums, which are crucial to the curriculum, CLS students must undergo and pass a background check and drug screening. In addition, some clinical practicums require finger printing.

A grade of C (75%) or higher must be earned in each CLS class. If a student earns less than a C (75%), the student must withdraw from the program and reapply the following year.

All students must perform within limits of safe practice. Students who are deemed unsafe by faculty will be dropped and will receive an F in the clinical course. All work performed by students during the clinical practicum is under the direct supervision of clinical faculty and countersigned by them.

As a professional, the student must exhibit a commitment to the welfare of patients. The faculty in the program reserves the right to refuse the opportunity of a student to perform tests or procedures on patients if the student gives evidence of unsafe and/or ineffective laboratory techniques.

Students graduating from The University of Texas at El Paso are eligible to take the national certification exam from the American Society for Clinical Pathology Board of Certification (BOC). Students passing the exam can use the initials *MLS* after their names.

Degree Plan

Required Credits: 133

Code	Title	Hours
University Core Curriculum		
Complete the University Core Curriculum requirements. (p. 3)		42
Clinical Lab Science Program Prerequisites		
All CLSC courses require a C or better		
Designated Core Courses: [C]		
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
MATH 1411	Calculus I	4
Recommended Core:		
PHIL 2306	Ethics	3
PSYC 1301	Introduction to Psychology	3
Program Prerequisites:		
The courses below are also prerequisite courses requiring a C or better for other courses in the CLS degree plan		
BIOL 1305 & BIOL 1107	General Biology and Topics in Study of Life I	4
BIOL 2313 & BIOL 2113	Human Anat/Physiology II and Human Anat/Physio Lab II	4
BIOL 3320	Genetics	3
CHEM 2324 & CHEM 2124	Organic Chemistry and Lab for Organic Chemistry 2324	4
CLSC 2210	Intro to the Clinical Lab	2
CLSC 2212	Clinical Laboratory Statistics	2
CLSC 3357	Opportunist & Parasitic Infect	3
MICR 2340 & MICR 2141	General Microbiology and Gen Microbiology Laboratory	4
Clinical Lab Science Core (Courses require a grade of C or better.)		
Junior Year-Summer:		
CLSC 3351	Concepts in Immunodiagnostics	3
Junior Year-Fall Semester:		
CLSC 3153	Body Fluids Lab	1
CLSC 3155	Clinical Chemistry I Lab	1
CLSC 3161	Serology Lab	1
CLSC 3252	Body Fluids	2
CLSC 3257	Hematology I Lab	2
CLSC 3260	Serology	2
CLSC 3354	Clinical Chemistry I	3
CLSC 3356	Hematology I	3
Junior Year-Spring Semester:		
CLSC 3164	Clinical Chemistry II Lab	1
CLSC 3167	Infectious Dis Lab:Pre-Anal Op	1
CLSC 3168	Infec Dis Lab:Anal/Post-Ana Op	1
CLSC 3269	Immunohematology Lab	2
CLSC 3364	Hematology II	3
CLSC 3365	Clinical Chemistry II	3
CLSC 3366	Infectious Diseases	3
CLSC 3368	Immunohematology	3
Senior Year - Summer		
CLSC 4210	Molecular Diagnostics	2
CLSC 4111	Molecular Diagnosis Laboratory	1
Senior Year-Fall Semester:		

CLSC 4471	Preceptorship I	4
CLSC 4472	Preceptorship II	4
CLSC 4273	Clinical Education	2
CLSC 4274	Clinical Investigation	2
Senior Year-Spring Semester:		
CLSC 4100	Ethics	1
CLSC 4180	Seminar	1
CLSC 4275	Clinical Lab Mgmt/Supervision	2
CLSC 4476	Preceptorship III	4
CLSC 4478	Preceptorship IV	4
Total Hours		**133**

C Courses require a grade of C or better.

University Core Curriculum

The department may make specific suggestions for courses which are most applicable towards your major.

All courses require a C or better

I. Communication (six hours)

Code	Title	Hours
Courses in this category focus on developing ideas and expressing them clearly, considering the effect of the message, fostering understanding, and building the skills needed to communicate persuasively. Courses involve the command of oral, aural, written, and visual literacy skills that enable people to exchange messages appropriate to the subject, occasion, and audience.		
Select six hours of the following:		6
For students whose secondary education was in English:		
COMM 1611	Written and Oral Communication	
ENGL 1313	Writing About Literature	
RWS 1301	Rhetoric & Composition I	
RWS 1302	Rhetoric & Composition 2	
RWS 1601	Rhetoric, Composition & Comm	
For students whose secondary education was not in English:		
ESOL 1311	Expos Engl Compos-Spkr Esl	
ESOL 1312	Res & Crit Writng Spkr Esl	
Total Hours		**6**

II. American History (six hours)

Code	Title	Hours
Courses in this category focus on the consideration of past events and ideas relative to the United States, with the option of including Texas History for a portion of this component area. Courses involve the interaction among individuals, communities, states, the nation, and the world, considering how these interactions have contributed to the development of the United States and its global role.		
HIST 1301	History of U.S. to 1865	3
HIST 1302	History of U.S. Since 1865	3
Total Hours		**6**

III. Language, Philosophy & Culture (three hours)

Code	Title	Hours
Courses in this category focus on how ideas, values, beliefs, and other aspects of culture express and affect human experience. Courses involve the exploration of ideas that foster aesthetic and intellectual creation in order to understand the human condition across cultures.		
Select one of the following:		3
AFST 2300	Intro-African Amer Studies	
CHIC 2302	Latina/o Presence in the U.S.	
ENGL 2311	English Literature	

ENGL 2312	English Literature	
ENGL 2313	Intro to American Fiction	
ENGL 2314	Intro to American Drama	
ENGL 2318	Intro to American Poetry	
FREN 2322	Making of the "Other" Americas	
HIST 2301	World History to 1500	
HIST 2302	World History Since 1500	
PHIL 1301	Introduction to Philosophy	
PHIL 2306	Ethics	
RS 1301	Introduct to Religious Studies	
SPAN 2340	Seeing & Naming: Conversations	
WS 2300	Introduction to Womens Studies	
WS 2350	Global Feminisms	
Total Hours		**3**

IV. Mathematics (three hours)

Code	Title	Hours
Courses in this category focus on quantitative literacy in logic, patterns, and relationships. Courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience.		
Select one of the following:		3
MATH 1309	College Algebra	
MATH 1310	Trigonometry and Conics	
MATH 1319	Math in the Modern World	
MATH 1320	Math for Social Sciences I	
MATH 1411	Calculus I	
MATH 1508	Precalculus [1,2]	
MATH 2301	Math for Social Sciences II	
STAT 1380	Statistical Literacy	
STAT 2480	Elementary Statistical Methods	
1 A higher-level course in the calculus sequence can be substituted.		
2 TCCN MATH 1314 will also satisfy this requirement.		
Total Hours		**3**

V. Life & Physical Sciences (six hours)

Code	Title	Hours
Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on experiences.		
Select one of the following:		1-4
ASTR 1107	Astronomy Lab I	
ASTR 1307	Elem Astronomy-Solar System	
ASTR 1308	Elem Astr Stars & Galaxies	
BIOL 1103	Introductory Biology Lab	
BIOL 1104	Human Biology Laboratory	
BIOL 1107	Topics in Study of Life I	
BIOL 1108	Organismal Biology Laboratory	
BIOL 1203	Introductory Biology	
BIOL 1304	Human Biology	
BIOL 1305	General Biology	
BIOL 1306	Organismal Biology	
BIOL 2111	Human Anat/Physio Lab I	
BIOL 2113	Human Anat/Physio Lab II	
BIOL 2311	Human Anat/Physiology I	
BIOL 2313	Human Anat/Physiology II	

CHEM 1105	Laboratory for CHEM 1305	
CHEM 1106	Laboratory for CHEM 1306	
CHEM 1107	Intro General Chemistry Lab	
CHEM 1108	Intro Organic & Biochem Lab	
CHEM 1305	General Chemistry	
CHEM 1306	General Chemistry	
CHEM 1307	Intro to General Chemistry	
CHEM 1308	Intro Organic & Biochemistry	
ESCI 1101	Environmental Sci. Lab	
ESCI 1102	Non-major Lab for ESCI 1301	
ESCI 1202	Intro to Environment Science 2	
ESCI 1301	Intro to Environmental Sci	
GEOG 1106	Laboratory for GEOG 1306	
GEOG 1306	Physical Geography	
GEOL 1103	Lab for GEOL 1313	
GEOL 1104	Lab for GEOL 1314	
GEOL 1111	Principles of Earth Sci - Lab	
GEOL 1112	Laboratory for Geology 1212	
GEOL 1211	Principles of Earth Sciences	
GEOL 1212	Principles of Earth Science	
GEOL 1230	The Blue Planet	
GEOL 1231	Natural Hazards	
GEOL 1313	Intro to Physical Geology	
GEOL 1314	Intro to Historical Geol	
HSCI 2302	Fundamentals of Nutrition	
HSCI 2303	Wellness Dynamics	
MICR 2330	Microorganisms and Disease	
PHYS 1403	General Physics I	
PHYS 1404	General Physics II	
PHYS 2120	Laboratory for PHYS 2320	
PHYS 2121	Laboratory for PHYS 2321	
PHYS 2320	Introductory Mechanics	
PHYS 2321	Introductory Electromagnetism	
Total Hours		**6**

VI. Political Science (six hours)

Code	Title	Hours
Courses in this category focus on consideration of the Constitution of the United States and the constitutions of the states, with special emphasis on that of Texas. Courses involve the analysis of governmental institutions, political behavior, civic engagement, and their political and philosophical foundations.		
Required Courses:		
POLS 2310	Introduction to Politics	3
POLS 2311	American Gover & Politics	3
Total Hours		**6**

VII. Social and Behavioral Sciences (three hours)

Code	Title	Hours
Courses in this category focus on the application of empirical and scientific methods that contribute to the understanding of what makes us human. Courses involve the exploration of behavior and interactions among individuals, groups, institutions, and events, examining their impact on the individual, society, and culture.		
Select one of the following:		3
ANTH 1301	Intro-Phys Anth/Archeolog	
ANTH 1302	Intro-Cultural Anthropology	

ANTH 1310	Cultural Geography	
ANTH 2320	Intro to Linguistics	
CE 2326	Econ for Engrs & Scientists	
CHIC 2311	Intro to Chicano Studies	
ASIA 2300	Asian American Studies	
COMM 2350	Interpersonal Communication	
COMM 2372	Mass Media and Society	
ECON 2303	Principles of Macroeconomics	
ECON 2304	Principles of Microeconomics	
EDPC 1301	Introduction to Ed Psychology	
EDU 1342	Action Research in Classrooms	
ENGL 2320	Introduction to Linguistics	
GEOG 1310	Cultural Geography	
LEAD 2300	Leadership in Action	
LING 2320	Introduction to Linguistics	
LING 2340	Lang. Inside & Out: Sel Topics	
PSYC 1301	Introduction to Psychology	
SOCI 1301	Introduction to Sociology	
SOCI 1310	Cultural Geography	
Total Hours		**3**

VIII. Creative Arts (three hours)

Code	Title	Hours
Courses in this category focus on the appreciation and analysis of creative artifacts and works of the human imagination. Courses involve the synthesis and interpretation of artistic expression and enable critical, creative, and innovative communication about works of art.		
Select one of the following:		3
ART 1300	Art Appreciation	
ARTH 1305	History of Art I	
ARTH 1306	History of Art II	
CHIC 1311	Chicana/o Fine Arts Appreciat	
DANC 1304	Introduction to Dance	
FILM 1390	Intro-Art of Motion Pict.	
MUSL 1324	Music Appreciation	
MUSL 1327	Jazz to Rock	
MUSL 2321	Music, Culture, and Society	
THEA 1313	Introduction to Theatre	
Total Hours		**3**

IX. Component Area Option (six hours)

Code	Title	Hours
a. A minimum of 3 SCH must meet the definition and corresponding Core Objectives specified in one of the foundational component areas. b. As an option for up to 3 semester credit hours of the Component Area Option, an institution may select course(s) that: (i) Meet(s) the definition specified for one or more of the foundational component areas; and (ii) Include(s) a minimum of three Core Objectives, including Critical Thinking Skills, Communication Skills, and one of the remaining Core Objectives of the institution's choice.		
BUSN 1301	Intro to Global Business	
COMM 1301	Public Speaking	
COMM 1302	Business/Profession Comm	
CS 1310	Intro-Computational Thinking	
CS 1320	Computer Programming Sci/Engr	
EL 1301	Eng Innovation and Leadership	
ENGR 1302	Engineering Design Experience	
ENGR 1303	Applied Engineering Analysis	
LEAD 1300	Introduction to Leadership	

SCI 1301	Inquiry in Math & Science	
SPLP 1312	Comm. Var. Across the Lifespan	
UNIV 1301	Seminar/Critical Inquiry	
Total Hours		**0**

4-Year Sample Degree Plan

BS Clinical Laboratory Science (Starting with Pre-Calculus)

Code	Title	Hours
BACHELOR OF SCIENCE IN CLINICAL LABORATORY SCIENCE		
(Starting with Pre-Calculus)		
FRESHMAN		
Fall		
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
MATH 1508	Precalculus	5
RWS 1301	Rhetoric & Composition I	3
or ESOL 1311	Expos Engl Compos-Spkr Esl	
Component Core I		3
Spring		
BIOL 1305 & BIOL 1107	General Biology and Topics in Study of Life I	4
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
HIST 1301	History of U.S. to 1865	3
MATH 1411	Calculus I	4
RWS 1302	Rhetoric & Composition 2	3
or ESOL 1312	Res & Crit Writng Spkr Esl	
or ENGL 1313	Writing About Literature	
Summer		
Component Core II		
HIST 1302	History of U.S. Since 1865	3
Social and Behavioral Sciences Core		3
Creative Arts Core		3
SOPHOMORE		
Fall		
BIOL 2313 & BIOL 2113	Human Anat/Physiology II and Human Anat/Physio Lab II	4
CHEM 2324 & CHEM 2124	Organic Chemistry and Lab for Organic Chemistry 2324	4
CLSC 2210	Intro to the Clinical Lab	2
MICR 2340 & MICR 2141	General Microbiology and Gen Microbiology Laboratory	4
POLS 2310	Introduction to Politics	3
Spring		
BIOL 3320	Genetics	3
CLSC 2212	Clinical Laboratory Statistics	2
CLSC 3357	Opportunist & Parasitic Infect	3
POLS 2311	American Gover & Politics	3
Language, Philosophy, and Culture Core		
Summer		
CLSC 3351	Concepts in Immunodiagnostics	3
JUNIOR		
Fall		

CLSC 3252 & CLSC 3153	Body Fluids and Body Fluids Lab	3
CLSC 3260 & CLSC 3161	Serology and Serology Lab	3
CLSC 3354 & CLSC 3155	Clinical Chemistry I and Clinical Chemistry I Lab	4
CLSC 3356 & CLSC 3257	Hematology I and Hematology I Lab	5
Spring		
CLSC 3167 & CLSC 3168	Infectious Dis Lab:Pre-Anal Op and Infec Dis Lab:Anal/Post-Ana Op	2
CLSC 3364	Hematology II	3
CLSC 3365 & CLSC 3164	Clinical Chemistry II and Clinical Chemistry II Lab	4
CLSC 3366	Infectious Diseases	3
CLSC 3368 & CLSC 3269	Immunohematology and Immunohematology Lab	5
Summer		
CLSC 4210	Molecular Diagnostics	2
CLSC 4111	Molecular Diagnosis Laboratory	1
SENIOR		
Fall		
CLSC 4273	Clinical Education	2
CLSC 4274	Clinical Investigation	2
CLSC 4471	Preceptorship I	4
CLSC 4472	Preceptorship II	4
Spring		
CLSC 4100	Ethics	1
CLSC 4180	Seminar	1
CLSC 4275	Clinical Lab Mgmt/Supervision	2
CLSC 4476	Preceptorship III	4
CLSC 4478	Preceptorship IV	4
Total		**133**

BS Clinical Laboratory Science (Starting with Calculus)

Code	Title	Hours
BACHELOR OF SCIENCE IN CLINICAL LABORATORY SCIENCE		
(Starting with Pre-Calculus)		
FRESHMAN		
Fall		
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
MATH 1411	Calculus I	4
RWS 1301	Rhetoric & Composition I	3
or ESOL 1311	Expos Engl Compos-Spkr Esl	
Component Core I		3
Spring		
BIOL 1305 & BIOL 1107	General Biology and Topics in Study of Life I	4
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
HIST 1301	History of U.S. to 1865	3
RWS 1302	Rhetoric & Composition 2	3
or ESOL 1312	Res & Crit Writng Spkr Esl	

or ENGL 1313	Writing About Literature	
Summer		
Component Core II		3
HIST 1302	History of U.S. Since 1865	3
Social and Behavioral Sciences Core		3
Creative Arts Core		3
SOPHOMORE		
Fall		
BIOL 2313 & BIOL 2113	Human Anat/Physiology II and Human Anat/Physio Lab II	4
CHEM 2324 & CHEM 2124	Organic Chemistry and Lab for Organic Chemistry 2324	4
CLSC 2210	Intro to the Clinical Lab	2
MICR 2340 & MICR 2141	General Microbiology and Gen Microbiology Laboratory	4
POLS 2310	Introduction to Politics	3
Spring		
BIOL 3320	Genetics	3
CLSC 2212	Clinical Laboratory Statistics	2
CLSC 3357	Opportunist & Parasitic Infect	3
POLS 2311	American Gover & Politics	3
Language, Philosophy, and Culture Core		
Summer		
CLSC 3351	Concepts in Immunodiagnostics	3
JUNIOR		
Fall		
CLSC 3252 & CLSC 3153	Body Fluids and Body Fluids Lab	3
CLSC 3260 & CLSC 3161	Serology and Serology Lab	3
CLSC 3354 & CLSC 3155	Clinical Chemistry I and Clinical Chemistry I Lab	4
CLSC 3356 & CLSC 3257	Hematology I and Hematology I Lab	5
Spring		
CLSC 3167 & CLSC 3168	Infectious Dis Lab:Pre-Anal Op and Infec Dis Lab:Anal/Post-Ana Op	2
CLSC 3364	Hematology II	3
CLSC 3365 & CLSC 3164	Clinical Chemistry II and Clinical Chemistry II Lab	4
CLSC 3366	Infectious Diseases	3
CLSC 3368 & CLSC 3269	Immunohematology and Immunohematology Lab	5
Summer		
CLSC 4210	Molecular Diagnostics	2
CLSC 4111	Molecular Diagnosis Laboratory	1
SENIOR		
Fall		
CLSC 4273	Clinical Education	2
CLSC 4274	Clinical Investigation	2
CLSC 4471	Preceptorship I	4
CLSC 4472	Preceptorship II	4
Spring		
CLSC 4100	Ethics	1

CLSC 4180	Seminar	1
CLSC 4275	Clinical Lab Mgmt/Supervision	2
CLSC 4476	Preceptorship III	4
CLSC 4478	Preceptorship IV	4
Total		**133**