

BHS in Clinical and Diagnostic Sciences with Emphasis in Clinical Laboratory Science

Degree Program Description

Clinical laboratory Scientists are skilled, certified professionals trained in the theoretical and practical aspects of clinical laboratory medicine – chemistry, hematology, microbiology, immunology, molecular pathology, and blood banking. Clinical Laboratory Scientists have various levels of responsibility – as staff technologists, research technologists, supervisors, managers, or educators – and can work in a variety of settings, including hospitals, clinics, laboratories, and research centers. Approximately 70 percent of all medical decisions regarding a patient’s diagnosis and treatment, as well as their hospital admission and discharge, are based upon laboratory test results obtained by Clinical Laboratory Scientists. The Clinical Laboratory Science (CLS) program at MU is a unique collaboration with the University of Nebraska Medical Center in Omaha. The CLS program includes three years of pre-requisite coursework, and 11 months of clinical coursework. The clinical year begins in late May, with 13 weeks of coursework and clinical lab rotations in a dedicated summer student lab facility at the University of Nebraska’s Medical Center in Omaha. After the initial 13 weeks in the program, CLS students return the Mid-Missouri area and complete their clinical laboratory rotations at local and regional clinical sites. Students graduate with a Bachelor of Health Science (BHS) degree in Clinical and Diagnostic Sciences with an emphasis in Clinical Laboratory Science from the University of Missouri. Upon completion of the program, students are eligible to challenge the Medical Laboratory Scientist credentialing examination administered by the American Society for Clinical Pathology Board of Certification (ASCP BOC). The CLS program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) via its partnership with the NAACLS-accredited Medical Laboratory Science program of the University of Nebraska Medical Center.

Major Program Requirements

Students must complete the courses below with a grade of C- or higher to earn the BHS in Clinical and Diagnostic Sciences with an emphasis in Clinical Laboratory Science degree. In addition, students must meet degree and University requirements (<http://catalog.missouri.edu/academicdegreerequirements/universityrequirements/>), including University general education (<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>). In addition to the degree requirements below, the CLS program requires an application, including an interview, and students are encouraged to work with an advisor in order to best structure the prerequisites and prepare for the program application. The application process is competitive, and meeting minimum criteria does not guarantee admission. There are a limited number of clinical positions available. A minimum 2.5 cumulative in addition to a math/science course GPA are required to be considered for acceptance.

| Program Prerequisites | | 45 |
|--|---|-----------|
| MATH 1100 | College Algebra | 3 |
| ENGLISH 1000 | Writing and Rhetoric | 3 |
| or ENGLISH 1000H | Honors Writing and Rhetoric | |
| PSYCH 1000 | General Psychology | 3 |
| or PSYCH 1000H | General Psychology - Honors | |
| STAT 1200 | Introductory Statistical Reasoning | 3 |
| or STAT 1300 | Elementary Statistics | |
| or ESC_PS 4170 | Introduction to Applied Statistics | |
| HLTH_SCI 4200W | Introduction to The Research Process and Evidence Base - Writing Intensive (same as HLTH_SCI 3900W) | 3 |
| Biological sciences elective (at least 16 hours of Biological Science, including the following) | | |
| BIO_SC 1500 | Introduction to Biological Systems with Laboratory | 5 |
| or BIO_SC 1500H | Introduction to Biological Systems with Laboratory Honors | |
| BIO_SC 2200 | General Genetics | 4 |
| or BIO_SC 2200H | General Genetics - Honors | |
| MICROB 3200 | Medical Microbiology and Immunology | 4 |
| or BIO_SC 3750 | General Microbiology | |
| V_PBIO 3551 | Introduction to Immunology I | 3 |
| or MICROB 4304 | Immunology for Health Professions | |
| Physical sciences requirement (at least 14 hours of Chemistry, including the following) | | |
| CHEM 1320 | College Chemistry I | 4 |
| or CHEM 1320H | College Chemistry I - Honors | |
| CHEM 1330 | College Chemistry II | 4 |
| or CHEM 1330H | College Chemistry II- Honors | |
| CHEM 2100 | Organic Chemistry I | 3 |
| 2000-level or higher Chemistry or Biochemistry course from approved course list | | 3 |
| Major Core Requirements | | 43 |
| CL_L_S 4407 | Clinical Laboratory Operations | 2 |
| CL_L_S 4408 | Introduction to Clinical Hematology | 2 |
| CL_L_S 4409 | Introduction to Clinical Microbiology | 2 |
| CL_L_S 4410 | Introduction to Clinical Chemistry and Urinalysis | 1 |
| CL_L_S 4411 | Introduction to Clinical Immunohematology | 1 |
| CL_L_S 4412 | Clinical Laboratory Science Theory, Application and Correlation | 5 |
| CL_L_S 4413 | Clinical Endocrinology and Toxicology | 1 |
| CL_L_S 4414 | Clinical Chemistry and Urinalysis I | 2 |
| CL_L_S 4415 | Clinical Chemistry and Urinalysis II | 2 |
| CL_L_S 4416 | Clinical Hematology I | 2 |
| CL_L_S 4417 | Clinical Hematology II | 2 |
| CL_L_S 4418 | Clinical Microbiology I | 2 |
| CL_L_S 4419 | Clinical Microbiology II | 2 |
| CL_L_S 4420 | Clinical Immunology and Molecular Diagnostics | 2 |
| CL_L_S 4422 | Immunohematology I | 2 |
| CL_L_S 4423 | Clinical Immunohematology II | 2 |
| CL_L_S 4442 | Clinical Immunohematology Laboratory Practicum I | 1 |

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|--------------|---|---|
| CL_L_S 4443 | Clinical Immunohematology Laboratory Practicum II | 1 |
| CL_L_S 4444 | Clinical Core Laboratory Practicum I | 1 |
| CL_L_S 4445 | Clinical Core Laboratory Practicum II | 1 |
| CL_L_S 4448 | Clinical Microbiology Laboratory Practicum I | 1 |
| CL_L_S 4449 | Clinical Microbiology Laboratory Practicum II | 1 |
| CL_L_S 4970 | Clinical Laboratory Management I | 2 |
| CL_L_S 4980W | Clinical Lab Management II - Writing Intensive | 3 |

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| CL_L_S 4448 | 1 | CL_L_S 4980W | 3 |
| CL_L_S 4970 | 2 | | |
| 16 | | 19 | |

Total Credits: 120

NOTE: Third Year - Summer to be completed in Omaha.

Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

| First Year | | | |
|---|----|-------------|----|
| Fall | CR | Spring | CR |
| MATH 1100 | 3 | CHEM 1320 | 4 |
| BIO_SC 1500 | 5 | ENGLSH 1000 | 3 |
| HLTH_SCI 1000 (recommended elective) | 3 | SOCIOL 1000 | 3 |
| PSYCH 1000 | 3 | Elective | 3 |
| 14 | | 13 | |

| Second Year | | | |
|-------------|----|------------------------------------|----|
| Fall | CR | Spring | CR |
| CHEM 1330 | 4 | MICROB 3200 | 4 |
| BIO_SC 2200 | 4 | CHEM 2100 | 3 |
| Humanities | 3 | HIST 1100, 1200, or POL_SC 1100 | 3 |
| Elective | 3 | Elective | 2 |
| 14 | | 12 | |

| Third Year | | | | | |
|------------------------------------|----|---|----|----------------------------|--------|
| Fall | CR | Spring | CR | Summer | CR |
| MICROB 4304 | 3 | HLTH_SCI 3900W or SOCIOL 3950W | 3 | CL_L_S 4407 | 2 |
| STAT 1200, 1300, or ESC_PS 4170 | 3 | 2000-level or higher Chemistry or Biochemistry course from approved course list | 3 | CL_L_S 4408 | 2 |
| 2000+ level Humanities | 3 | Humanities | 3 | CL_L_S 4409 | 2 |
| Elective | 3 | Elective | 3 | CL_L_S 4410 CL_L_S 4411 | 1 1 |
| 12 | | 12 | | 8 | |

| Fourth Year | | | |
|-------------|----|-------------|----|
| Fall | CR | Spring | CR |
| CL_L_S 4413 | 1 | CL_L_S 4412 | 5 |
| CL_L_S 4414 | 2 | CL_L_S 4415 | 2 |
| CL_L_S 4416 | 2 | CL_L_S 4417 | 2 |
| CL_L_S 4418 | 2 | CL_L_S 4419 | 2 |
| CL_L_S 4420 | 2 | CL_L_S 4423 | 2 |
| CL_L_S 4422 | 2 | CL_L_S 4443 | 1 |
| CL_L_S 4442 | 1 | CL_L_S 4445 | 1 |
| CL_L_S 4444 | 1 | CL_L_S 4449 | 1 |