

# MEDICAL LABORATORY SCIENCE - B.S.

College of Sciences and Humanities  
Department of Biological Sciences  
www.kent.edu/biology

## About This Program

Turn your passion for science into a career that saves lives. Through hands-on lab work and clinical training, you will learn to analyze blood, tissue and other samples, generating the critical data that drives up to 70 percent of medical decisions and supports accurate diagnosis and treatment. Build in-demand technical skills and join a vital healthcare team working at the forefront of modern medicine in hospitals, clinics and research labs. Read more...

## Contact Information

- **Devin Mueller** | dmuell10@kent.edu | 330-672-2934
- Speak with an Advisor
- Chat with an Admissions Counselor

## Program Delivery

- **Delivery:**
  - In person
- **Location:**
  - Kent Campus

## Examples of Possible Careers and Salaries\*

### Clinical laboratory technologists and technicians

- 1.7% slower than the average
- 351,200 number of jobs
- \$61,890 potential earnings

### Health specialties teachers, postsecondary

- 17.3% much faster than the average
- 289,600 number of jobs
- \$105,620 potential earnings

\* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics'

Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at which half of the workers in the occupation earned more than that amount and half earned less.

## Admission Requirements

The university affirmatively strives to provide educational opportunities and access to students with varied backgrounds, those with special talents and adult students.

**First-Year Students on the Kent Campus:** First-year admission policy on the Kent Campus is selective. Admission decisions are based

upon cumulative grade point average, strength of high school college preparatory curriculum and grade trends. Students not admissible to the Kent Campus may be administratively referred to one of the seven regional campuses to begin their college coursework. For more information, visit the admissions website for first-year students.

**First-Year Students on the Regional Campuses:** First-year admission to Kent State's campuses at Ashtabula, East Liverpool, Geauga, Salem, Stark, Trumbull and Tuscarawas, as well as the Twinsburg Academic Center, is open to anyone with a high school diploma or its equivalent. For more information on admissions, contact the Regional Campuses admissions offices.

**International Students:** All international students must provide proof of proficiency of the English language (unless they meet specific exceptions) through the submission of an English language proficiency test score or by completing English language classes at Kent State's English as a Second Language Center before entering their program. For more information, visit the admissions website for international students.

**Former Students:** Former Kent State students who have not attended another institution since Kent State and were not academically dismissed will complete the re-enrollment process through the Financial, Billing and Enrollment Center. Former students who attended another college or university since leaving Kent State must apply for admissions as a transfer or post-undergraduate student.

**Transfer Students:** Students who attended an educational institution after graduating from high school or earning their GED must apply as transfer students. For more information, visit the admissions website for transfer students.

Admission policies for undergraduate students may be found in the University Catalog's Academic Policies.

Students may be required to meet certain criteria to progress in their program. Any progression requirements will be listed on the program's Coursework tab

## Program Requirements

### Major Requirements

Code	Title	Credit Hours
<b>Major Requirements (courses count in major GPA)</b>		
BSCI 10110	BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB)	4
BSCI 10120	BIOLOGICAL FOUNDATIONS (ELR) (KBS) (KLAB)	4
BSCI 30050	HUMAN GENETICS	3
BSCI 30130	HUMAN PHYSIOLOGY	3
BSCI 30140	CELL BIOLOGY	4
BSCI 30171	GENERAL MICROBIOLOGY	4
BSCI 40148	PRINCIPLES OF INFECTIOUS DISEASE	3
BSCI 40174	IMMUNOLOGY	3
CHEM 10060	GENERAL CHEMISTRY I (KBS)	4
CHEM 10061	GENERAL CHEMISTRY II (KBS)	4
CHEM 10062	GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB)	1
CHEM 10063	GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB)	1
CHEM 20481	BASIC ORGANIC CHEMISTRY I	4
CHEM 30105	ANALYTICAL CHEMISTRY I	3

CHEM 30107	ANALYTICAL CHEMISTRY LABORATORY I (WIC) (min C grade) <sup>1</sup>	1
CHEM 30284	INTRODUCTORY BIOLOGICAL CHEMISTRY	4
CHEM 30301	INORGANIC CHEMISTRY I	3
CLS 49010	CLINICAL MICROBIOLOGY: THEORY <sup>2</sup>	4
CLS 49011	CLINICAL MICROBIOLOGY: APPLICATIONS	4
CLS 49012	CLINICAL IMMUNOLOGY: THEORY	1
CLS 49013	CLINICAL IMMUNOLOGY: APPLICATIONS	1
CLS 49014	CLINICAL MYCOLOGY: THEORY AND APPLICATIONS	1
CLS 49015	CLINICAL PARASITOLOGY: THEORY AND APPLICATIONS	1
CLS 49020	CLINICAL CHEMISTRY: THEORY	4
CLS 49021	CLINICAL CHEMISTRY: APPLICATIONS	3
CLS 49022	URINALYSIS: THEORY	1
CLS 49023	URINALYSIS: APPLICATIONS	1
CLS 49030	IMMUNOHEMATOLOGY: THEORY	2
CLS 49031	IMMUNOHEMATOLOGY: APPLICATIONS	2
CLS 49032	COAGULATION: THEORY AND APPLICATIONS	1
CLS 49033	CLINICAL HEMATOLOGY: THEORY	2
CLS 49034	CLINICAL HEMATOLOGY: APPLICATIONS	2
CLS 49040	TOPICS IN LABORATORY MANAGEMENT	1
CS 10062	PROGRAMMING FOR PROBLEM SOLVING IN SCIENCES	3-4
	or EMAT 25310 CREATIVE CODING	
MATH 11022	TRIGONOMETRY (KMCR)	3
MATH 30011	BASIC PROBABILITY AND STATISTICS	3
<b>Additional Requirements (courses do not count in major GPA)</b>		
UC 10001	FLASHES 101	1
American Civic Literacy Requirement <sup>3</sup>		3
Kent Core Composition		6
Kent Core Humanities and Fine Arts (minimum one course from each) <sup>3</sup>		6-9
Kent Core Social Sciences (must be from two disciplines) <sup>3</sup>		3-6
General Electives (total credit hours depends on earning 120 credit hours, including 39 upper-division credit hours)		5
<b>Minimum Total Credit Hours:</b>		<b>120</b>

<sup>1</sup> A minimum C grade must be earned to fulfill the writing-intensive requirement.

<sup>2</sup> Students who complete the required in-hospital clinical experience fulfill the experiential learning requirement.

<sup>3</sup> If students complete the American Civic Literacy requirement by taking HIST 12061, the course will apply to the Kent Core Humanities category. If they complete it with POL 10101, the course will apply to the Kent Core Social Sciences category.

## Graduation Requirements

Minimum Major GPA	Minimum Overall GPA
2.000	2.000

- Students are expected to consult with a medical technology advisor before registering for courses each semester.
- The fourth year clinical training is NOT guaranteed, but it is required to graduate with this major. Acceptance to clinical training is at the discretion of the clinical affiliates, is highly competitive and is based on multiple criteria. Typically, clinical affiliates will interview students with a minimum 3.000 major GPA and hospital experience.

- Students declared in the Medical Laboratory Science major are not required to meet the College of Sciences and Humanities foreign language requirement.

The following Biological Sciences (BSCI) courses may NOT be used in the elective category for majors or minors in the Department of Biological Sciences:

Code	Title	Credit Hours
BSCI 10001	HUMAN BIOLOGY (KBS)	3
BSCI 10002	LIFE ON PLANET EARTH (KBS)	3
BSCI 10003	LABORATORY EXPERIENCE IN BIOLOGY (KBS) (KLAB)	1
BSCI 10005	SMALL ANIMAL ANATOMY AND PHYSIOLOGY FOR VETERINARY TECHNICIANS	4
BSCI 11010	FOUNDATIONAL ANATOMY AND PHYSIOLOGY I (KBS) (KLAB)	3
BSCI 11020	FOUNDATIONAL ANATOMY AND PHYSIOLOGY II (KBS) (KLAB)	3
BSCI 16001	HORTICULTURAL BOTANY	3
BSCI 20019	BIOLOGICAL STRUCTURE AND FUNCTION	4
BSCI 20021	BASIC MICROBIOLOGY	3
BSCI 20022	BASIC MICROBIOLOGY LABORATORY	1
BSCI 21010	ANATOMY AND PHYSIOLOGY I (KBS) (KLAB)	4
BSCI 21020	ANATOMY AND PHYSIOLOGY II	4
BSCI 26002	ECOLOGICAL PRINCIPLES OF PEST MANAGEMENT	3
BSCI 26003	PLANT IDENTIFICATION AND SELECTION I	3
BSCI 26004	PLANT IDENTIFICATION AND SELECTION II	3
BSCI 30050	HUMAN GENETICS	3
BSCI 40020	BIOLOGY OF AGING	3

## Roadmap

This roadmap is a recommended semester-by-semester plan of study for this program. Students will work with their advisor to develop a sequence based on their academic goals and history. Courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

Semester One			Credits
!	BSCI 10110	BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB)	4
!	CHEM 10060	GENERAL CHEMISTRY I (KBS)	4
!	CHEM 10062	GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB)	1
	MATH 11022	TRIGONOMETRY (KMCR)	3
	UC 10001	FLASHES 101	1
	Kent Core Requirement		3
			<b>Credit Hours</b>
			<b>16</b>
Semester Two			Credits
!	BSCI 10120	BIOLOGICAL FOUNDATIONS (ELR) (KBS) (KLAB)	4
!	CHEM 10061	GENERAL CHEMISTRY II (KBS)	4
!	CHEM 10063	GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB)	1
	Kent Core Requirement		3
	General Elective		3
			<b>Credit Hours</b>
			<b>15</b>
Semester Three			Credits
!	BSCI 30140	CELL BIOLOGY	4

!	CHEM 20481	BASIC ORGANIC CHEMISTRY I	4
	American Civic Literacy Requirement		3
	Kent Core Requirement		3
	<b>Credit Hours</b>		<b>14</b>
	<b>Semester Four</b>		
!	BSCI 30130	HUMAN PHYSIOLOGY	3
	BSCI 30171	GENERAL MICROBIOLOGY	4
!	CHEM 30301	INORGANIC CHEMISTRY I	3
	Kent Core Requirement		3
	Kent Core Requirement		3
	<b>Credit Hours</b>		<b>16</b>
	<b>Semester Five</b>		
	BSCI 30050	HUMAN GENETICS	3
	BSCI 40148	PRINCIPLES OF INFECTIOUS DISEASE	3
!	CHEM 30105	ANALYTICAL CHEMISTRY I	3
!	CHEM 30107	ANALYTICAL CHEMISTRY LABORATORY I (WIC)	1
	MATH 30011	BASIC PROBABILITY AND STATISTICS	3
	<b>Credit Hours</b>		<b>13</b>
	<b>Semester Six</b>		
!	BSCI 40174	IMMUNOLOGY	3
!	CHEM 30284	INTRODUCTORY BIOLOGICAL CHEMISTRY	4
	CS 10062	PROGRAMMING FOR PROBLEM SOLVING IN SCIENCES	3-4
	or	EMAT 25310	or CREATIVE CODING
	Kent Core Requirement		3
	General Elective		2
	<b>Credit Hours</b>		<b>15</b>
	<b>Semester Seven</b>		
!	CLS 49010	CLINICAL MICROBIOLOGY: THEORY	4
!	CLS 49011	CLINICAL MICROBIOLOGY: APPLICATIONS	4
!	CLS 49012	CLINICAL IMMUNOLOGY: THEORY	1
!	CLS 49013	CLINICAL IMMUNOLOGY: APPLICATIONS	1
!	CLS 49014	CLINICAL MYCOLOGY: THEORY AND APPLICATIONS	1
!	CLS 49015	CLINICAL PARASITOLOGY: THEORY AND APPLICATIONS	1
!	CLS 49020	CLINICAL CHEMISTRY: THEORY	4
	<b>Credit Hours</b>		<b>16</b>
	<b>Semester Eight</b>		
!	CLS 49021	CLINICAL CHEMISTRY: APPLICATIONS	3
!	CLS 49022	URINALYSIS: THEORY	1
!	CLS 49023	URINALYSIS: APPLICATIONS	1
!	CLS 49030	IMMUNOHEMATOLOGY: THEORY	2
!	CLS 49031	IMMUNOHEMATOLOGY: APPLICATIONS	2
!	CLS 49032	COAGULATION: THEORY AND APPLICATIONS	1
!	CLS 49033	CLINICAL HEMATOLOGY: THEORY	2
!	CLS 49034	CLINICAL HEMATOLOGY: APPLICATIONS	2
!	CLS 49040	TOPICS IN LABORATORY MANAGEMENT	1
	<b>Credit Hours</b>		<b>15</b>
	<b>Minimum Total Credit Hours:</b>		<b>120</b>

## University Requirements

All students in a bachelor's degree program at Kent State University must complete the following university requirements for graduation.

**NOTE:** University requirements may be fulfilled in this program by specific course requirements. Please see Program Requirements for details.

Flashes 101 (UC 10001)	1 credit hour
Course is not required for students with 30+ transfer credits (excluding College Credit Plus) or age 21+ at time of admission.	
American Civic Literacy	3 credit hours
Experiential Learning Requirement (ELR)	varies
Students must successfully complete one course or approved experience.	
Kent Core (see table below)	36-37 credit hours
Writing-Intensive Course (WIC)	1 course
Students must earn a minimum C grade in the course.	
Upper-Division Requirement	39 credit hours
Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate.	
Total Credit Hour Requirement	120 credit hours

## Kent Core Requirements

Kent Core Composition (KCMP)	6
Kent Core Mathematics and Critical Reasoning (KMCR)	3
Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each)	9
Kent Core Social Sciences (KSS) (must be from two disciplines)	6
Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory)	6-7
Kent Core Additional (KADL)	6
<b>Total Credit Hours:</b>	<b>36-37</b>

## Program Learning Outcomes

Graduates of this program will be able to:

1. Be certified as professional medical laboratory scientists.
2. Perform assays of clinical samples in a hospital or laboratory setting.
3. Demonstrate an understanding of human physiology and familiarity with human health issues.
4. Interpret chemical and molecular data for clinical diagnosis.

## Program Policies

### Mandatory Outcomes Assessment

In addition to the other General Requirements of the college, candidates for an undergraduate degree in the College of Sciences and Humanities are required, as a condition of graduation, to participate in an outcomes assessment. These outcomes assessments are conducted by each undergraduate degree program in the College of Sciences and Humanities.

### Three-Plus-One Programs

Students who choose to pursue Three-Plus-One programs take three years of preprofessional study at Kent State University, followed by a year or more of intensive professional training at an accredited professional school or clinical facility. Upon the satisfactory completion of this professional training, the B.S. degree from the College of Sciences and Humanities at Kent State University is awarded. Students must earn 97 credit hours in a university. Appropriate transfer credit from

other institutions may be included in these 97 credit hours, but the students must complete at least 42 credit hours in-residence at Kent State University, including the last 32 credit hours of the 97 credit hours requirement.

Students must have a minimum 2.000 GPA in all work taken at Kent State University. They must also complete with at least a 2.000 average all off-campus work taken to fulfill fourth-year requirements. In some fields, students may also be required to present other evidence of the satisfactory completion of the off-campus professional training.

Students must satisfy all degree requirements, including the B.S. General Requirements and field of concentration requirements, by a combination of credits earned at Kent State University and the professional school. The only exception is that the college's foreign language requirement is waived for students who successfully complete a Three-Plus-One program.

Three-Plus-One programs are designed for students with a well-defined, specific, professional career goal. Currently, the College of Sciences and Humanities offers a Three-Plus-One program in Medical Laboratory Science. Because of the intensive, professional focus of these programs, students pursuing them should work closely with their faculty advisors. Students who are interested in this program should consult the Department of Biological Sciences, 256 Cunningham Hall, for further information.

Please see the program requirements for the Medical Laboratory Science program offered under the College of Sciences and Humanities.

## **Full Description**

The Bachelor of Science degree in Medical Laboratory Science allows students to combine three years of study at Kent State with 12 months of professional training at an approved hospital. Medical laboratory scientists are trained to perform complex chemical, microscopic and microbiological procedures. Graduates are eligible to sit for the Board of Registry of the American Society of Clinical Pathologists Exam.

## **Professional Licensure Disclosure**

This program is designed to prepare students to sit for applicable licensure or certification in Ohio. If you plan to pursue licensure or certification in a state other than Ohio, please review state educational requirements for licensure or certification and contact information for state licensing boards at Kent State's website for professional licensure disclosure.