

## MEDICAL LABORATORY SCIENCE B.S.

All students must meet the University Requirements (<http://catalogue.uvm.edu/undergraduate/academicinfo/degreerequirements/>).

All students must meet the College Requirements. (<http://catalogue.uvm.edu/undergraduate/nursingandhealthsciences/#requirements#text>)

Medical Laboratory Scientists (MLS) are health professionals involved in the development, performance, and evaluation of laboratory tests that lead to assessment of health status, diagnosis of disease, and monitoring of therapeutic treatment. Students in this major work closely with faculty members and engage in hands-on learning in the classroom, laboratory and clinical environment to develop critical thinking and technical skills.

Students select a concentration in clinical laboratory science or public health laboratory science at the end of their second year. The curriculum provides balance between general and professional education, with coursework in the sciences and liberal arts serving as a foundation for the medical laboratory science courses. In the fourth year, the final semester consists of a full time clinical practicum at an off-campus affiliate site, which may require additional room, meal, and/or transportation expenses. Site selection for the final semester is determined by a lottery system.

Graduates in medical laboratory science are qualified for a national certification exam administered by the American Society for Clinical Pathology (ASCP) and required by most clinical diagnostic and public health laboratories. This four-year curriculum leading to the baccalaureate degree is accredited by the National Accrediting Agency for Clinical Laboratory Sciences.

### CLINICAL LABORATORY SCIENCE CONCENTRATION

Clinical laboratory science students complete course work which prepares them for practica in medical laboratories where they will apply their biomedical knowledge and technical skills and further learn about the health and disease status of patients.

### PRACTICUM SITES

- Albany Medical Center, Albany, NY
- Beth Israel Deaconess Medical Center, Boston, MA
- Brigham and Women’s Hospital, Boston, MA
- Champlain Valley Physicians Hospital, Plattsburgh, NY
- Central Vermont Medical Center, Berlin, VT
- Dartmouth Hitchcock Medical Center, Lebanon, NH
- Elliot Hospital, Manchester, NH
- Glens Falls Hospital, Glens Falls, NY
- Massachusetts General Hospital, Boston, MA
- NorDx, Portland and Scarborough, ME
- Rutland Regional Medical Center, Rutland, VT
- St. Peter’s Hospital, Albany, NY

- University of Vermont Medical Center, Burlington, VT
- Yale New Haven Hospital, New Haven, CT

## PUBLIC HEALTH LABORATORY SCIENCE CONCENTRATION

Public health laboratory scientists work in public health laboratories at the state, federal and international level. The curriculum focuses on the use of microbiology and molecular biology in the field of public health, in support of epidemiology, and to monitor health status and disease prevention strategies.

### PRACTICUM SITES

- District of Columbia Health Department, Washington DC
  - New Hampshire Department of Health Laboratory, Concord, NH
  - Vermont Department of Health Laboratory, Burlington, VT
  - Wadsworth Center, New York Department of Health, Albany, NY
- Note: Clinical affiliations subject to change.

## PLAN OF STUDY

The Medical Laboratory Science major offers two concentrations:

Clinical Laboratory Science Concentration

Public Health Laboratory Science Concentration

## CLINICAL LABORATORY SCIENCE CONCENTRATION

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1	4	
ENGS 001 FW:Written Expression	3	
HLTH 003 Medical Terminology	2	
BHSC 034 Human Cell Biology or MATH 019 QR: Fundamentals of Calculus I	3-4	3-4
NH 050 App to Hlth: From Pers to Syst	1	
BHSC 098 Intro to Scientific Writing		3
CHEM 032 General Chemistry 2		4
Elective/Diversity/Sustainability Course		6
Year Total:	13-14	16-17
Sophomore	Credits	
	Fall	Spring
ANPS 019 Ugr Hum Anatomy & Physiology 1	4	
STAT 111 QR: Elements of Statistics or STAT 141 QR:Basic Statistical Methods 1	3	

MMG 101 Microbiol & Infectious Disease	4	
NH 120 Health Care Ethics	3	
Elective/Diversity/Sustainability Course	3	7
ANPS 020 Ugr Hum Anatomy & Physiology 2		4
CHEM 042 Intro Organic Chemistry		4
Year Total:	17	15

Junior	Credits	
	Fall	Spring
BHSC 297 Leadership & Mgt in Hlth Care <sup>1</sup>	3	
BIOC 201 Fundamentals of Biochemistry	3	
PATH 101 Intro to Human Disease	3	
MLS 221 Clinical Chemistry I <sup>1</sup>	4	
Elective Course	3	3
MMG 222 Advanced Medical Microbiology <sup>1</sup>		4
Choose one of the following courses:		3
BHSC 242 Immunology <sup>1</sup>		
MMG 223 Immunology <sup>1</sup>		
BHSC 244 Immunology Lab <sup>1</sup>		1
MLS 222 Clinical Chemistry II <sup>1</sup>		3
Year Total:	16	14

Senior	Credits	
	Fall	Spring
BHSC 281 Applied Molecular Biology <sup>1</sup>	3	
BHSC 282 Applied Molecular Biology Lab <sup>1</sup>	1	
MLS 231 Hematology <sup>1</sup>	4	
MLS 255 Clinical Microbiology II <sup>1</sup>	3	
MLS 262 Immunohematology <sup>1</sup>	4	
MLS 292 Topics in Medical Lab Science <sup>1</sup>		3
MLS 220 Clinical Practicum: Chemistry <sup>1</sup>		3
MLS 230 Clinical Practicum:Hematology <sup>1</sup>		3
MLS 250 Clin Practicum:Microbiology <sup>1</sup>		3
MLS 260 Clin Practicum:Immunohematolog <sup>1</sup>		3
Year Total:	15	15

<b>Total Credits in Sequence:</b>	<b>121-123</b>
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<sup>1</sup> Professional course

This plan of study is designed to meet the requirements for the Medical Laboratory Science major's clinical laboratory science concentration. Changes should be reviewed with a student's academic advisor.

A minimum of 121 semester credit hours, minimum GPA per program requirement, and University sustainability and diversity fulfillment are required for graduation.

### PUBLIC HEALTH LABORATORY SCIENCE CONCENTRATION

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1	4	
ENGS 001 FW:Written Expression	3	
HLTH 003 Medical Terminology	2	
BHSC 034 Human Cell Biology or MATH 019 QR: Fundamentals of Calculus I	3-4	3-4
NH 050 App to Hlth: From Pers to Syst	1	
BHSC 098 Intro to Scientific Writing		3
CHEM 032 General Chemistry 2		4
Elective/Diversity/Sustainability Course <sup>3</sup>		6
Year Total:	13-14	16-17

Sophomore	Credits	
	Fall	Spring
ANPS 019 Ugr Hum Anatomy & Physiology 1	4	
STAT 111 QR: Elements of Statistics or STAT 141 QR:Basic Statistical Methods 1	3	
MMG 101 Microbiol & Infectious Disease	4	
NH 120 Health Care Ethics	3	
Elective/Diversity/Sustainability Course <sup>3</sup>	3	6
ANPS 020 Ugr Hum Anatomy & Physiology 2		4
CHEM 042 Intro Organic Chemistry		4
Year Total:	17	14

Junior	Credits	
	Fall	Spring
BHSC 297 Leadership & Mgt in Hlth Care <sup>1</sup>	3	
BIOC 201 Fundamentals of Biochemistry	3	
PATH 101 Intro to Human Disease	3	
STAT 200 QR: Med Biostat&Epidemiology	3	
Choose one of the following courses:	3	3
HLTH 105 D2:Cultural Health Care		
HSCI 080 Epidemics: Dynam of Inf Diseas		
MMG 222 Advanced Medical Microbiology <sup>1,2</sup>		4
BHSC 242 Immunology <sup>1</sup>		
MMG 223 Immunology <sup>1</sup>		
BHSC 244 Immunology Lab <sup>1</sup>		1
BCOR 101 Genetics		3
Elective Course <sup>3</sup>		4
Year Total:	15	15
Senior	Credits	
	Fall	Spring
BHSC 281 Applied Molecular Biology <sup>1</sup>	3	
BHSC 282 Applied Molecular Biology Lab <sup>1</sup>	1	
NFS 203 Food Microbiology	3	
MLS 255 Clinical Microbiology II <sup>1</sup>	3	
Elective Course <sup>3</sup>	6	
MLS 282 Public Health Lab Practicum <sup>1</sup>		12
MLS 250 Clin Practicum:Microbiology (or Elective) <sup>1,2,3</sup>		3
Year Total:	16	15
<b>Total Credits in Sequence:</b>	<b>121-123</b>	

This plan of study is designed to meet the requirements for the Medical Laboratory Science major's public health laboratory science concentration. Changes should be reviewed with a student's academic advisor.

A minimum of 121 semester credit hours, minimum GPA per program requirement, and University sustainability and diversity fulfillment are required for graduation.

<sup>1</sup> Professional course

<sup>2</sup> MLS 250 Clinical Practicum: Microbiology must be approved by the MLS program director.

<sup>3</sup> For the public health science concentration, students must take 6 credits of department-approved electives in the area of Public Health. Students must obtain a list of approved elective courses for each respective academic year from their academic advisor.