Bachelor of Science in Medical

Laboratory Science

Medical Laboratory Science (BSMLS)

Bachelor of Science in Medical Laboratory Science

http://www.odu.edu/mdts/medical-laboratory-science (http://www.odu.edu/mdts/medical-laboratory-science/)

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The medical laboratory scientist plays a vital role in the diagnosis and treatment of disease by performing clinical laboratory tests on patients' blood, body fluids, and other specimens. This includes clinical tests within the areas of chemistry, microbiology, hematology, immunology/serology, urinalysis, immunohematology (blood banking), and molecular pathology.

The program has been continually accredited by the National Accrediting Agency for Clinical Laboratory Sciences, 5600 N River Road, Suite 720, Rosemont, IL 60018, 773 714-8880. Due to accreditation, upon successful completion of the program graduates are eligible to take the national certification exam for Medical Laboratory Scientist, administered by the American Society for Clinical Pathology, MLS(ASCP).

Admission

Admission to the University does not constitute admission to the medical laboratory science program. Students are admitted to the program after completion of two years of college study, which includes all program prerequisite courses. All program prerequisite courses must be completed with a grade of C (2.00) or better. Additionally, applicants must be in good academic standing (cumulative GPA 2.0 or greater). The students then enter two years of a combined didactic and clinical phase congruent with the 2+ 2 concept. A grade of C (2.00) or better is required in all medical laboratory science course work for continuance in the program. The program does not offer just the final clinical phase to transfer applicants from 3 + 1 programs. Applications to the program, including all materials, must be submitted no later than February 1 for consideration for admission the following fall. Exemptions may be appealed only through the program director. Prospective students who fail to meet the February 1 deadline for formal admission may be allowed to take on-campus medical laboratory science/medical technology courses on a space-available basis. Permission must be first granted by the program director in advance of registration.

Requirements

Lower-Division General Education

Written Communication (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#written)	6
Oral Communication (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#oral)	3
Mathematics (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#math)	3
Language and Culture (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#language)	0-6
Information Literacy and Research (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#information)	3

Human Behavior (http://catalog.odu.edu/undergraduate/ requirements-undergraduate-degrees/#behavior)	3
Human Creativity (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#creativity)	3
Interpreting the Past (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#interpret)	3
Literature (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#literature)	3
Philosophy and Ethics (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#philosophy)	3
The Nature of Science (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#nature)	8
Impact of Technology (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#impact)	3

Written Communication: grade of C or better required in both courses

Mathematics: satisfied through departmental requirements

Nature of Science: satisfied through departmental requirements

Oral Communication: satisfied through major course requirements

Philosophy and Ethics: PHIL 345E Bioethics preferred; 300/400 level P or E course meets upper-division general education/Option D

Impact of Technology: 300/400 level preferred; any 300/400 level T course EXCEPT DNTH 440T meets upper-division general education/Option D

Upper-Division General Education

- Option A. Approved Disciplinary Minor, 12 hours minimum; also second degree or second major.
- Option B. Interdisciplinary Minor (specifically 12 hours, 3 of which may be in the major)
- Option C. An approved Certification Program such as teaching licensure
- Option D. Two Upper-Division Courses from outside the College of Health Sciences and not required by the major (6 hours)

Requirements for Graduation

Requirements for graduation include the following:

- Minimum of 120 credit hours.
- Minimum of 30 credit hours overall and 12 credit hours of upper-level courses in the major program from Old Dominion University.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken toward the major.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken toward a minor.
- Completion of ENGL 110C, ENGL 211C or ENGL 231C, and the writing intensive (W) course in the major with a grade of C or better. The W course must be taken at Old Dominion University.
- · Completion of Senior Assessment.

Departmental Requirements

Students must complete the following courses with a C or better prior to entering the Medical Laboratory Science/Medical Technology program:

STAT 130M	Elementary Statistics	3
MATH 102M	College Algebra	3
or MATH 103M	College Algebra with Supplemental Instruction	
BIOL 121N & BIOL 122N	General Biology I and General Biology I Lab	4
CHEM 121N & CHEM 122N	Foundations of Chemistry I Lecture and Foundations of Chemistry I Laboratory	4
CHEM 123N & CHEM 124N	Foundations of Chemistry II Lecture and Foundations of Chemistry II Laboratory	4

CHEM 211	Organic Chemistry I Lecture	5
& CHEM 212	and Organic Chemistry I Laboratory	4
BIOL 250 BIOL 251	Human Anatomy and Physiology I Human Anatomy and Physiology II	4
Total Credit Hou		31
		31
Medical Laborato	ory Science Major	
General Educatio	n	
	vision requirements	27-33
	vision requirements	0-6
Departmental Re		31
Complete department Medical Laborato		31
See requirements b		63
Total Credit Hou		121-133
Course	Title	Credit Hours
Third Year		
Fall		
MLS 210	Orientation to Medical Laboratory Science	1
MLS 307	Clinical Methods in Microbiology	1
MLS 308	Clinical Microbiology	2
MLS 311	Hematology	3
MLS 312	Hematology Laboratory	1
MLS 324	Clinical Instrumentation	3
MLS 325	Clinical Instrumentation Methods	1
MLS 330	Clinical Immunology/Serology	2
MLS 331	Clinical Immunology/Serology Laboratory	1
	Credit Hours	15
Spring		
MLS 309	Medical Bacteriology	3
MLS 319	Medical Bacteriology Methods	2
MLS 310	Urinalysis and Body Fluids	1
MLS 313	Diagnostic Methods in Urinalysis	1
MLS 326	Immunohematology	3
MLS 336	Immunohematology Laboratory	1
MLS 328	Advanced Hematology and Hemostasis	2
MLS 339	Medical Parasitology and Mycology Laboratory	1
MLS 340	Medical Parasitology, Mycology, and Virology	1
MLS 351	Clinical Biochemistry	3
	Credit Hours	18
Summer		
MLS 320	Blood Collection Techniques	2
MLS 454	Clinical Blood Bank Practicum	4

Credit Hours

Fourth Year			
Fall			
MLS 440	Statistical Applications and Data Analysis in the Clinical Laboratory	3	
MLS 406	Clinical Microbiology Practicum	5	
MDTS 401	Molecular Diagnostics Laboratory	3	
Clinical Practica 4-5 credits fro elective	m fourth year spring semester or		
	Credit Hours	11	
Spring			
MLS 404	Clinical Hematology Practicum	4	
MLS 452	Clinical Biochemistry Practicum	5	
MLS 403W	Management in the Clinical Setting	3	
MLS 457	Medical Laboratory Science Seminar	1	
Clinical Practica 4-5 credits fro elective	Clinical Practica 4-5 credits from fourth year spring semester or elective		
	Credit Hours	13	
	Total Credit Hours	63	

Note: Junior year core courses that are over three years old prior to starting a rotation (practicum course) must be reevaluated by the faculty member at ODU in charge of the specialty, in both theoretical knowledge and technical skills. Reevaluation may result in the need to repeat and/or audit out-of-date courses. This applies to both part-time and returning students.

Degree Program Guide

The Degree Program Guide is a suggested curriculum to complete this degree program in four years. It is just one of several plans that will work and is presented only as broad guidance to students. Each student is strongly encouraged to develop a customized plan in consultation with their academic advisor. Additional information can also be found in Degree Works.

Course	Title	Credit Hours	
Freshman			
Fall			
ENGL 110C	English Composition	3	
MATH 102M or MATH 103M	College Algebra or College Algebra with Supplemental Instruction	3	
BIOL 121N	General Biology I	3	
BIOL 122N	General Biology I Lab	1	
Human Creativity		3	
CHEM 103 may be needed as prerequisite to CHEM 121N (3 credits)			
	rerequisite to CITEM 12111 (5		
	Credit Hours	13	
	•	13	
credits)	•	13	
Spring ENGL 211C	Credit Hours Writing, Rhetoric, and Research or Writing, Rhetoric, and		
Spring ENGL 211C or ENGL 231C	Credit Hours Writing, Rhetoric, and Research or Writing, Rhetoric, and Research: Special Topics Foundations of Chemistry I	3	

Information Literacy 3 3			
Sophomore Fail MLS 210 Orientation to Medical Laboratory Science 1 CHEM 123N Foundations of Chemistry II Lecture 3 CHEM 124N Foundations of Chemistry II Laboratory 1 BIOL 250 Phuman Anatomy and Physiology I 4 Literature 3 1 Credit Hours 15 Spring Credit Hours 3 Chemistry I Lecture 3 CHEM 212 Organic Chemistry I Lecture <td< th=""><th>Information Literacy</th><th></th><th>3</th></td<>	Information Literacy		3
Fall MLS 210 Orientation to Medical Laboratory Science 1 CHEM 123N Foundations of Chemistry II Lecture 3 CHEM 124N Foundations of Chemistry II Leboratory 1 BIOL 250 Human Anatomy and Physiology I 4 Literature 3 7 Kerdit Hours 15 Spring BIOL 251 Human Anatomy and Physiology II 4 CHEM 212 Organic Chemistry I Lecture 3 CHEM 212 Organic Chemistry I Lecture		Credit Hours	16
MLS 210 Orientation to Medical Laboratory Science CHEM 123N Foundations of Chemistry II Lecture CHEM 124N Foundations of Chemistry II Laboratory BIOL 250 Human Anatomy and Physiology I Literature 3 Credit Hours 3 Foundations of Chemistry II Laboratory	Sophomore		
Laboratory Science	Fall		
Lecture	MLS 210		1
Laboratory Human Anatomy and Physiology I	CHEM 123N		3
Physiology I	CHEM 124N	*	1
Human Behavior	BIOL 250		4
Spring Spring	Literature		3
Spring BIOL 251	Human Behavior		3
Human Anatomy and Physiology II CHEM 211 Organic Chemistry I Lecture 3 CHEM 212 Organic Chemistry I Lecture 3 CHEM 212 Organic Chemistry I Laboratory Impact of Technology (Option D 300/400) 3 Philosophy and Ethics (Option D 300/400) 3 Tordit Hours 15 Junior Fall		Credit Hours	15
Physiology II	Spring		
Physiology II		Human Anatomy and	4
CHEM 212 Organic Chemistry I Laboratory Caboratory Credit Hours Sumbor State Clinical Methods in Microbiology MLS 311 Hematology Laboratory Hematology Clinical Instrumentation Methods Clinical Immunology/Serology 2 MLS 331 Clinical Immunology/Serology 1 Clinical Immunology/Serology 1 Credit Hours Medical Bacteriology 3 MLS 319 Medical Bacteriology Methods 2 MLS 310 Urinalysis and Body Fluids 1 MLS 313 Diagnostic Methods in Urinalysis MLS 326 Immunohematology 3 MLS 336 Immunohematology 3 3 3 3 3 3 3 3 3			
Laboratory Impact of Technology (Option D 300/400) 3 Philosophy and Ethics (Option D 300/400) 3 Philosophy and Ethics (Option D 300/400) 3 Junior Fall MLS 307 Clinical Methods in Microbiology 2 MLS 311 Hematology Laboratory 1 MLS 312 Hematology Laboratory 1 MLS 324 Clinical Instrumentation 3 MLS 325 Clinical Instrumentation Methods 2 MLS 330 Clinical Immunology/Serology 2 MLS 331 Clinical Immunology/Serology 2 MLS 309 Medical Bacteriology 3 MLS 319 Medical Bacteriology Methods 2 MLS 313 Diagnostic Methods in Urinalysis 1 MLS 326 Immunology M	CHEM 211	Organic Chemistry I Lecture	3
Philosophy and Ethics (Option D 300/400) 3 3 3 3 3 3 4 3 3 3	CHEM 212		2
Credit Hours	Impact of Technology (Op	tion D 300/400)	3
Junior Fall MLS 307 Clinical Methods in Microbiology 1 MLS 308 Clinical Microbiology 2 MLS 311 Hematology 3 MLS 312 Hematology Laboratory 1 MLS 324 Clinical Instrumentation 3 MLS 325 Clinical Instrumentation Methods 1 MLS 330 Clinical Immunology/Serology 2 MLS 331 Clinical Immunology/Serology 1 Laboratory 1 Credit Hours 14 Spring MLS 309 Medical Bacteriology 3 MLS 319 Medical Bacteriology Methods 2 MLS 310 Urinalysis and Body Fluids 1 MLS 313 Diagnostic Methods in Urinalysis 1 MLS 326 Immunohematology 3 MLS 336 Immunohematology 3 MLS 328 Advanced Hematology and Hemostasis 2 MLS 330 Medical Parasitology, and Virology 1 MLS 339 Me	Philosophy and Ethics (Op	otion D 300/400)	3
Fall MLS 307 Clinical Methods in Microbiology MLS 308 Clinical Microbiology MLS 311 Hematology MLS 312 Hematology Laboratory MLS 324 Clinical Instrumentation MLS 325 Clinical Instrumentation MLS 330 Clinical Immunology/Serology MLS 331 Clinical Immunology/Serology Laboratory Credit Hours 14 Spring MLS 309 Medical Bacteriology MLS 319 Medical Bacteriology Methods MLS 310 Urinalysis and Body Fluids MLS 313 Diagnostic Methods in Urinalysis MLS 326 Immunohematology MLS 336 Immunohematology MLS 336 Immunohematology MLS 336 Immunohematology MLS 338 Advanced Hematology and Hemostasis MLS 340 Medical Parasitology, and Virology MLS 339 Medical Parasitology, and Virology MLS 339 Medical Parasitology and Medical Parasitology and Mycology Laboratory MLS 339 Medical Parasitology and Mycology Laboratory		Credit Hours	15
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MLS 324 Clinical Instrumentation 3 MLS 325 Clinical Instrumentation Methods MLS 330 Clinical Immunology/Serology 2 MLS 331 Clinical Immunology/Serology 1 Laboratory 14 Spring MLS 309 Medical Bacteriology 3 MLS 319 Medical Bacteriology Methods 2 MLS 310 Urinalysis and Body Fluids 1 MLS 313 Diagnostic Methods in Urinalysis MLS 313 Urinalysis 1 MLS 326 Immunohematology 3 MLS 336 Immunohematology 1 MLS 336 Immunohematology 1 MLS 328 Advanced Hematology and Hemostasis 1 MLS 340 Medical Parasitology, Mycology, and Virology Medical Parasitology and Mycology Laboratory 1 MLS 339 Medical Parasitology and Mycology Laboratory 1 MLS 339 Medical Parasitology and Mycology Laboratory 1	MLS 312	Hematology Laboratory	1
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Spring MLS 309 Medical Bacteriology 3 MLS 319 Medical Bacteriology Methods 2 MLS 310 Urinalysis and Body Fluids 1 MLS 313 Diagnostic Methods in Urinalysis MLS 326 Immunohematology 3 MLS 336 Immunohematology 1 Laboratory 1 MLS 328 Advanced Hematology and Hemostasis 1 MLS 340 Medical Parasitology and Mycology, and Virology Medical Parasitology and Mycology Laboratory 1 MLS 339 Medical Parasitology and Mycology Laboratory 1 MLS 339 Medical Parasitology and Mycology Laboratory 1 MLS 339 Medical Parasitology and Mycology Laboratory 1	MLS 331	Clinical Immunology/Serology	1
Spring MLS 309 Medical Bacteriology 3 MLS 319 Medical Bacteriology Methods 2 MLS 310 Urinalysis and Body Fluids 1 MLS 313 Diagnostic Methods in Urinalysis MLS 326 Immunohematology 3 MLS 336 Immunohematology 1 Laboratory 1 MLS 328 Advanced Hematology and Hemostasis MLS 340 Medical Parasitology, Mycology, and Virology MLS 339 Medical Parasitology and Mycology Laboratory 1			
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MLS 319 Medical Bacteriology Methods 2 MLS 310 Urinalysis and Body Fluids 1 MLS 313 Diagnostic Methods in Urinalysis MLS 326 Immunohematology 3 MLS 336 Immunohematology 1 Laboratory 1 MLS 328 Advanced Hematology and Hemostasis 2 MLS 340 Medical Parasitology, Mycology, and Virology 1 MLS 339 Medical Parasitology and Mycology Laboratory 1 MLS 339 Medical Parasitology and Mycology Laboratory 1	Spring		
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MLS 313 Diagnostic Methods in Urinalysis MLS 326 Immunohematology 33 MLS 336 Immunohematology Laboratory MLS 328 Advanced Hematology and Hemostasis MLS 340 Medical Parasitology, Mycology, and Virology MLS 339 Medical Parasitology and Mycology Laboratory	MLS 319	Medical Bacteriology Methods	2
Urinalysis MLS 326 Immunohematology 3 MLS 336 Immunohematology 1 Laboratory 1 MLS 328 Advanced Hematology and Hemostasis MLS 340 Medical Parasitology, Mycology, and Virology 1 MLS 339 Medical Parasitology and Mycology Laboratory 1	MLS 310	Urinalysis and Body Fluids	1
MLS 336 Immunohematology Laboratory MLS 328 Advanced Hematology and Hemostasis MLS 340 Medical Parasitology, Mycology, and Virology MLS 339 Medical Parasitology and Mycology Laboratory	MLS 313		1
Laboratory MLS 328 Advanced Hematology and Hemostasis MLS 340 Medical Parasitology, Mycology, and Virology MLS 339 Medical Parasitology and Mycology Laboratory	MLS 326	Immunohematology	3
Hemostasis MLS 340 Medical Parasitology, 1 Mycology, and Virology MLS 339 Medical Parasitology and Mycology Laboratory	MLS 336		1
Mycology, and Virology MLS 339 Medical Parasitology and 1 Mycology Laboratory	MLS 328		2
Mycology Laboratory	MLS 340		1
MLS 351 Clinical Biochemistry 3	MLS 339		1
	10000	Clinical Biochemistry	3

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	Total Credit Hours	121
	Credit Hours	13
MLS 403W	Management in the Clinical Setting	3
MLS 457	Medical Laboratory Science Seminar	1
MLS 452	Clinical Biochemistry Practicum	5
MLS 404	Clinical Hematology Practicum	4
Spring	Credit Hours	11
MDTS 401	Molecular Diagnostics Laboratory	3
MLS 406	Clinical Microbiology Practicum	5
MLS 440	Statistical Applications and Data Analysis in the Clinical Laboratory	3
Fall		
Senior		
	Credit Hours	6
MLS 454	Clinical Blood Bank Practicum	4
MLS 320	Blood Collection Techniques	2