

## BS in Biology with MLS Certification

### INTRODUCTION

A medical laboratory scientist (also known as a medical technologist) is a healthcare professional who performs medical laboratory tests using a wide variety of instruments, microscopes, computers, chemicals, or other methods for clinical analysis to detect, diagnose, monitor and treat disease. The Biology Department at Winthrop University is now offering a MLS program through a partnership with the Carolina College of Health Science (CCHS) in Charlotte, NC, where students can complete the MLS program while finishing their BS in Biology. Upon successful completion of the program, students will possess entry-level competencies of a medical laboratory scientist and are eligible to sit for the American Society of Clinical Pathologists (ASCP) national certification exam.

### PROGRAM DETAILS

Students interested in the MLS program complete their first three years at Winthrop taking courses in the biology curriculum that includes their general education requirements and the prerequisites for the MLS program. The students then apply to CCHS showing evidence of satisfactory completion of the prerequisite courses and bulk of their BS degree requirements. Once accepted, students complete the 12month MLS program at CCHS that includes 44 credit hrs. of coursework. The credits for five of the courses (36 hrs.) will transfer to Winthrop and satisfy the remaining Biology and Math & Science elective requirements for the BS in biology degree.

### WINTHROP – 3 YEARS (\*Courses that satisfy CCHS prerequisites for the MLS program)

FRESHMAN YEAR					
Fall Semester		Hrs	Spring Semester		Hrs
ACAD 101	Princ. of the Learning Acad.	1	HMXP 102	Human Experience	3
WRIT 101	Composition: Intro. to Acad. Dis.	3	BIOL 221*	Princ. in Ecol., Evo., and Biodiv.	3
BIOL 202*	Freshmen Seminar	1	BIOL 223*	Princ. in Ecol., Evo., and Biodiv. lab	1
BIOL 220*	Princ. of Cell & Mol. Biol.	3	CHEM 105*	General Chemistry	4
BIOL 222*	Princ. of Cell & Mol. Biol. lab	1	MATH 141*	Statistics	3
CHEM 104*	Chem. and Problem-Solving Fund.	3	PESH		1
Quant. Skills		3			
Total hrs		15			15

SOPHOMORE YEAR					
Fall Semester		Hrs	Spring Semester		Hrs
CRTW 201		3	BIOL 316*	Genetics Lecture	3
BIOL 300*	Scie. Process in Biology	4	BIOL – A*	Area A: Ecology and Evolution	3 or 4
CHEM 108*	General Chem. Lab	2	Gen Ed	Humanities and Arts	3
Gen Ed	Social Science/ Const.Req.	3	Gen Ed	Social Science	3
F.L.	Foreign Language 101	4	F.L.	Foreign Language 102	4
Total hrs		16			16-18

JUNIOR YEAR					
Fall Semester		Hrs	Spring Semester		Hrs
BIOL 315*	Cell Biology	4	BIOL 522*	Immunology	4
BIOL 310*	Microbiology with lab	4	BIOL 480*	Integration of Biological Principles	3
CHEM 310*	Essentials of Organic Chem	3	CHEM 323*	Introductory Biochemistry	3
Gen Ed	Global Perspectives	3	Gen Ed	Historical Perspectives	3
BIOL 390	Department Seminar	0.5	Gen Ed	Humanities and Arts	3
			BIOL 490	Department Seminar	0.5
Total hrs		14.5			16.5

\* Student are required to take 16 hrs of chemistry coursework that includes organic chemistry or biochemistry for the MLS program. To reach 16hrs students should take either CHEM 301 or 310 + 311 in the fall and CHEM 302/304 or CHEM 323 in the spring. If CHEM 311 is not offered, a 1hr CHEM course can be used as an alternative.

## CCHS MLS – 12 months (\*\*Courses that will receive Winthrop credit for the BS degree)

MLS FIRST and SECOND SEMESTERS						
Fall Semester			Hrs	Spring Semester		Hrs
MLS 410**	Hematology/Coagulation/Clinical Microsc	7	MLS 430 **	Clinical Microbiology	9	
MLS 420**	Immunohematology	8	MLS 440**	Clinical Chemistry	8	
MLS 460	Professional Issues I	1	MLS 461	Professional Issues II	2	
Total hrs			16		19	

MLS THIRD SEMESTER/SUMMER		
Fall Semester		Hrs
MLS 450**	Clinical Immunology	4
MLS 462	Professional Issues III	1
MLS 470	Practicum	2
Total hrs		9

### Additional Information:

- Winthrop Biology Program:
  - Students will complete the requirements of one course each from Areas A, B, and C, and one additional course from A, B, or C
  - Students will complete 35 to 37 hrs of 44hrs of required BIOL courses
  - Students will have completed 16 hrs of CHEM
  - Students will complete 6 hrs of 13hrs required Math and Science electives:
- CCHS MLS Program:
  - Additional 28hrs BIOL credit through C CHS: MLS 410, 420, 430
  - Additional 8hrs Math and Science credit through MLS 440

### How to Apply:

- Students apply to the CCHS MLS program in the spring semester of their junior year at Winthrop through the CCHS website: <https://atriumhealth.org/education/carolinas-college-of-health-sciences/academic-programs/medical-laboratory-science>.
- Students submit official transcripts showing:
  - Minimum 2.5 cumulative GPA and minimum 2.5 math/science GPA
  - Minimum 16 hrs. in biology including microbiology with a lab (BIOL 310) and immunology (BIOL 522)
  - 16 hrs in chemistry including organic chemistry or biochemistry
- Submit two references using your official form (see CCHS website) – One from Winthrop Biology Department

### For more information, contact:

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Carolinas College of Health Sciences is a public college focused on educating students who are devoted to a healthcare career. The college is owed by Atrium Health therefore, enrolled students are given priority to facilities within the healthcare system for clinical rotations. Graduates would then have the credentials needed to work in a clinical laboratory setting where they would be able to detect, diagnose and treat human diseases. And upon completion of their degree and they are offered a job with Atrium Health, the students may be eligible for a generous signing bonus. Medical Laboratory Science students are eligible for the Atrium Health loan forgiveness program. This loan essentially pays for half of tuition cost upon agreeance to remain as a full-time employee for one-year after graduation from the MLS program.