B. S. IN BIOLOGY: MEDICAL LABORATORY SCIENCE CONCENTRATION

Fall 2022 – Spring 2023

I. ACADEMIC FOUNDATIONS & DEGREE REQUIREMENTS

Requirement	*Course*	*Credits*	*Term*	*Year*	*Grade*
First Year Experience	FYE 100	4	_____	_____	_____
Effective Writing I	WRT 120	3	_____	_____	_____
Effective Writing II	WRT 2__♠	3	_____	_____	_____
Mathematics: Statistics	MAT 121+ or 125+	3	_____	_____	_____
Interdisciplinary ("I")	_____	3	_____	_____	_____
Diverse Communities ("J")	_____♥	3	_____	_____	_____
Ethics ("ET")	_____♥	3	_____	_____	_____

Writing Emphasis ("W") *Nine credits♣, integrated across General Education & Major courses.*

	BIO 211	___	_____	_____	_____
	_____	___	_____	_____	_____
One at 300/400-level:	_____	___	_____	_____	_____

Speaking Emphasis ("SE") *Nine credits♣, integrated across General Education & Major courses.*

	_____	___	_____	_____	_____
	_____	___	_____	_____	_____
One at 300/400-level:	BIO 490	___	_____	_____	_____

II. GENERAL EDUCATION DISTRIBUTIVE REQUIREMENTS

- *Courses must be selected from the approved General Education list (see the catalog).*
- *Interdisciplinary ("I") courses cannot also be a General Education distributive course.*
- *Biology majors fulfill their science requirements with CHE 103 and PHY 130/170.*
- *Distributive requirements can be simultaneously satisfied with other degree requirements, see some examples♦.*

A. Humanities (6 credits): E.g., Literature (LIT/CLS), History (HIS), Philosophy (PHI)

Courses must be selected from two different subject areas.

_____	3	_____	_____	_____	
_____	3	_____	_____	_____	

B. **Behavioral and Social Sciences** (6 credits): E.g., Psychology (PSY), Sociology (SOC), Anthropology (ANT), Political Science (PSC), Geography (GEO), Economics (ECO)

Courses must be selected from two different subject areas.

Note: Students taking the MCAT should take PSY 100 and SOC 100.

_____	3	_____	_____	_____	
_____	3	_____	_____	_____	

C. **Arts** (3 credits): E.g., Art (ART), Art History (ARH), Dance (DAN), Film (FLM), Music (MHL, MTC), Theater (THA)

_____	3	_____	_____	_____	

III. DIRECTED ELECTIVES – 6 credits (as many as needed to reach 120 total credits)

_____	___	_____	_____	_____	
_____	___	_____	_____	_____	

IV. SUPPORTING COURSES (28-29 credits)

Calculus +*	MAT __	3	_____	_____	_____
General Chemistry I	CHE 103	3	_____	_____	_____
General Chemistry I Lab	CRL 103	1	_____	_____	_____
General Chemistry II	CHE 104	3	_____	_____	_____
General Chemistry II Lab	CRL 104	1	_____	_____	_____
Organic Chemistry I	CHE 231	4	_____	_____	_____
Organic Chemistry I Lab	CRL 231	2	_____	_____	_____
Organic Chemistry II	CHE 232	3	_____	_____	_____
General Physics I **	PHY 130	4	_____	_____	_____
General Physics II	PHY 140	4	_____	_____	_____

V. BIOLOGY COURSES (53 credits) -- GPA must be 2.0 or higher to graduate.

A. *Required Core Courses* (19 credits)

General Biology I ***	BIO 110	4	_____	_____	_____
General Biology II ***	BIO 111	4	_____	_____	_____
Genetics ***	BIO 210	3	_____	_____	_____
Genetics Lab ***	BIO 210L	1	_____	_____	_____
Cell Biology ***	BIO 211	4	_____	_____	_____
Seminar ***	BIO 490	3	_____	_____	_____

B. *Other Required Courses* (34 credits)

General Microbiology ***	BIO 214	4	_____	_____	_____
Immunology ***	BIO 465	4	_____	_____	_____

❖Internship in Medical Laboratory Science ***

	BIO 407-408	26	_____	_____	_____

Notes and Requirements

Total degree program: 120 credits.

♠ The second (200-level) WRT course is chosen from WRT 200, 204, 205, 206, 208, or 220.

♥ The Diverse Communities ("J") course and the Ethics ("ET") courses can be satisfied through another requirement (e.g., Interdisciplinary or Distributive) as long as the course carries the appropriate attribute(s). *Note*: Credits are not duplicated such that if a course satisfies two requirements, those credits must be made up via directed electives (the minimum total credits for a B.S. degree is 120).

♣ All students must take at least 9 credits of Writing Emphasis courses and 9 credits of Speaking Emphasis courses. Students who enter WCU with 40-70 transfer credits only need 6 credits of each; students who enter with >70 transfer credits only need 3 credits of each. **All students must take at least 3 credits of Writing Emphasis and 3 credits of Speaking Emphasis at the 300-400 level.**

♦ Students should think about how requirements can be simultaneously satisfied. As examples: LNC 110 is a Humanities distributive that satisfies the Ethics requirement; PHI 180 is a Humanities distributive that satisfies the Diverse Communities & Ethics requirements; LIT 165 is a Humanities distributive that is also Writing Emphasis; PSC 101 is a Behavioral & Social Science distributive that satisfies the Diverse Communities requirement.

+ All student will need to complete the Math Placement Exam before they can enroll in MAT courses. For information, please visit the link below. Please direct any questions to mathexam@wcupa.edu.
https://www.wcupa.edu/sciences-mathematics/mathematics/mathematicsPlacement.aspx

* The Biology department recommends MAT 145 (Calculus for the Life Sciences; 3 credits) or MAT 161 (Calculus I; 4 credits). MAT 143 (Brief Calculus; 3 credits) is also acceptable. You must meet the necessary pre-requisites or obtain a minimum score on the Math Placement Exam to enroll in a calculus class. Visit the Math Department website to take the exam. If you receive a score of 3 or lower on the placement exam, you must take MAT 115 (Algebra, Functions, and Trigonometry) or MAT 131 (Precalculus) as preparation for Calculus (MAT 143 or MAT 145). If a student scores a 2 or lower, they will need to take MAT Q30 before they can enroll in MAT 115 or MAT 131. Students can repeat the mathematics assessment to improve their score. If you receive a score of 4 or above, you can enroll directly into MAT 143 or MAT 145. You must score a 5 to enroll into MAT 161 or take the pre-requisite of MAT 131.

** The recommended Physics sequence is PHY 130 & PHY 140. Students may substitute the PHY 170 & PHY 180 sequence, but PHY 130 may not be used as a prerequisite for PHY 180 and PHY 170 may not be used as a prerequisite for PHY 140.

*** Course must be passed with a "C-" or better.

❖ To qualify for the internship, students must have a minimum 2.75 GPA and be accepted by an accredited hospital Medical Laboratory Science program. Applications should be submitted by the summer of the junior year (60 credits completed). Internships are very competitive and acceptance depends on the cumulative GPA, excellent letters of recommendation and successful completion of an on site interview. Please note that some programs require computer science or Anatomy and Physiology courses. Please see **Dr. Pisciotta** for any questions about applying for this internship.

A maximum of 8 combined credits from BIO 409 & 491 may be applied to total Biology credits.

Some Medical Laboratory Science programs require a course in computer science. Consult with **Dr. Pisciotta.**

Suggested Sequence for B.S. Biology Majors

Medical Laboratory Science Concentration

Fall 2022 – Spring 2023

	Semester #1 (15 credits)		**Semester #2 (17 credits)**
____	FYE 100 (4)	____	WRT 2___ (3)
____	WRT 120 (3)	____	BIO 111 (4)
____	BIO 110 (4)	____	CHE 104 (3) & CRL 104 (1)
____	CHE 103 (3) & CRL 103 (1)	____	MAT 125 or MAT 121 (3)
		____	Gen Ed Distributive: Behavioral & Social Science (3)
	Semester #3 (16 credits)		**Semester #4 (17-18 credits)**
____	BIO 210 (3) & BIO 210L (1)	____	BIO 211 (W) (4)
____	CHE 231 (4) & CRL 231 (2)	____	BIO 214 (4)
____	Gen Ed Distributive: Arts (3)	____	CHE 232 (3)
____	Gen Ed Distributive: Humanities & Ethics (ET) course (3)	____	Gen Ed Distributive: Humanities (3)
		____	MAT 145 (3) or MAT 143 (3) /161 (4)
	Semester #5 (17 credits)		**Semester #6 (16 credits)**
____	PHY 130 (4)	____	PHY 140 (4)
____	BIO 465 (4)	____	BIO 490 (SE) (3)
____	Diverse Communities Course (J) (3)	____	Directed Elective (3)
____	Interdisciplinary Course (I) (3)	____	Speaking Emphasis Course (SE) (3)
____	Upper-level Directed Elective (W) (3)	____	Gen Ed Distributive: Behavioral & Social Science (3)
	Semester #7 (13 credits)		**Semester #8 (13 credits)**
____	BIO 407	____	BIO 408

An average of 16 credits per semester must be completed to enter the Medical Laboratory Science training in the 4th year. If a student follows the proposed outline of courses, a total of 94 credits will be earned at WCU. The additional 26 credits necessary for graduation will be earned at the affiliated hospital.

All required 200 level Biology courses should be completed by the end of Semester #4.

Students should take Statistics (MAT 121 or 125) in the first year.

All students must take at least 9 credits of Writing Emphasis courses and 9 credits of Speaking Emphasis courses. Students who enter WCU with 40-70 transfer credits only need 6 credits of each; students who enter with >70 transfer credits only need 3 credits of each. **All students must take at least 3 credits of Writing Emphasis and 3 credits of Speaking Emphasis at the 300-400 level.**