

**B. S. IN BIOLOGY: MEDICAL LABORATORY SCIENCE
CONCENTRATION**
Fall 2023 – Spring 2024

I. ACADEMIC FOUNDATIONS & DEGREE REQUIREMENTS

<i>Requirement</i>	<i>Course</i>	<i>Credits</i>	<i>Term</i>	<i>Year</i>	<i>Grade</i>
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.

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_____ 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)

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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 2023 – Spring 2024

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