

**ADVISING SHEET:
B.S. in CHEMISTRY-BIOLOGY
Effective Fall 2021**

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__ ¹	3	_____	_____	_____
Mathematics	MAT 161 ^{4,5}	4	_____	_____	_____
Interdisciplinary (“I”)	PHI 371	3	_____	_____	_____
Diverse Communities (“J”) ²	_____	3	_____	_____	_____
Ethics (“ET”) ²	_____	3	_____	_____	_____

Writing Emphasis (“W”)^{2,3} *Nine credits, integrated across General Education & Major courses.*

BIO 211 ⁵	4	_____	_____	_____
_____	_____	_____	_____	_____
One at 300/400-level	_____	_____	_____	_____

Speaking Emphasis (“SE”)^{2,3} *Nine credits integrated across General Education & Major courses.*

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
One at 300/400-level	_____	_____	_____	_____

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.*
- *Chemistry-Biology majors fulfill their Science requirements with BIO 110 and PHY 130 (or 170).*
- *Distributive requirements can be simultaneously satisfied with other degree requirements.*

IV. 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	_____	_____	_____
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III. STUDENT ELECTIVES: 11 credits (or as many as needed to reach 120 total credits)

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

IV. SUPPORTING COURSES (15 credits)

Statistics and Probability OR Introduction to Statistics	MAT 125 ^{4,5} OR MAT 121 ^{4,5}	3	_____	_____	_____
Calculus I	MAT 161 ^{4,5}	4	_____	_____	_____
General Physics I OR Physics I	PHY 130 ^{5,6} OR PHY 170 ^{5,6}	4	_____	_____	_____
General Physics II OR Physics II	PHY 140 ^{5,6} OR PHY 180 ^{5,6}	4	_____	_____	_____

V. CHEMISTRY COURSES (39 credits)

A. Required Courses (33 credits)

General Chemistry I	CHE 103 ⁵	3	_____	_____	_____
General Chemistry I Lab	CRL 103 ⁵	1	_____	_____	_____
General Chemistry II	CHE 104 ⁵	3	_____	_____	_____
General Chemistry II Lab	CRL 104 ⁵	1	_____	_____	_____
Organic Chemistry I	CHE 231 ⁵	4	_____	_____	_____
Organic Chemistry I Lab	CRL 231 ⁵	2	_____	_____	_____
Organic Chemistry II	CHE 232 ⁵	3	_____	_____	_____
Analytical Chemistry I	CHE 321 ⁵	3	_____	_____	_____
Analytical Chemistry I Lab	CRL 321 ^{5,7}	3	_____	_____	_____
Physical Chemistry for the Life Sciences	CHE 345 ⁵	3	_____	_____	_____
Chemical Information	CHE 418 ⁵	1	_____	_____	_____
Biochemistry I	CHE 476 ⁵	3	_____	_____	_____
Biochemistry I Lab	CRL 476 ⁵	2	_____	_____	_____
Chemistry Seminar	CHE 491 ⁵	1	_____	_____	_____

B. Chemistry Electives.^{5,7} Select 6 credits under advisement. Courses may be selected from any chemistry course at the 300-level or higher not otherwise required, except CHE 310.

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

VI. BIOLOGY COURSES (24 credits)

General Biology I	BIO 110 ⁵	4	_____	_____	_____
General Biology II	BIO 111 ⁵	4	_____	_____	_____
Genetics	BIO 210 ⁵	3	_____	_____	_____
Genetics Lab	BIO 210L ⁵	1	_____	_____	_____
Cell Biology	BIO 211 ⁵	4	_____	_____	_____
Comparative Vertebrate Anatomy	BIO 357 ⁵	4	_____	_____	_____
Comparative Vertebrate Physiology OR Human Physiology	BIO 468 ⁵ OR BIO 469 ⁵	4	_____	_____	_____

VII. BIOLOGY OR CHEMISTRY ELECTIVE^{5,7} (3-4 credits)

Select 3-4 credits under advisement. Courses may be selected from any biology or chemistry course at the 300-level or higher not otherwise required, except CHE 310.

VIII. DEPARTMENT SAFETY EXAM

The department safety exam must be taken and passed before graduation and preferably immediately following CHE 232.

NOTES:

Total degree program: 120 credits.

¹The second (200-level) WRT course is any WRT course at the 200-level.

²The Diverse Communities (“J”) course, the Ethics (“ET”), Writing Emphasis (“W”) and Speaking Emphasis (“SE”) courses can be satisfied through another requirement (e.g., Interdisciplinary or Distributive) as long as the course carries the appropriate attribute(s). Credits are not duplicated. If a course satisfied two requirements, those credits must be made up via student electives so that the minimum total credits is 120.

³At least 9 credits of Writing Emphasis (“W”) courses and at least 9 credits of Speaking Emphasis (“SE”) courses are required for students who enter WCU with 0-39 credits of transfer credits. Students who enter WCU with 40-70 transfer credits only need 6 credits of each; students who enter WCU 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.

⁴All students will need to complete the Math Placement Exam before they can enroll in MAT courses. For information, please visit the following link: <https://www.wcupa.edu/sciences-mathematics/mathematics/mathematicsPlacement.aspx>
Students can repeat the Math Placement Exam to improve their score. If a student does not obtain the necessary score on the Math Placement Exam, the student will be required to take lower level mathematics courses before being allowed to enroll in the required mathematics courses for this degree.

⁵All science and mathematics courses must be passed with a “C–” or better.

⁶Either PHY 130 and PHY 140 OR PHY 170 and PHY 180 may be taken. 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.

⁷Students may, with the permission of their academic advisor and department chair, substitute an approved internship in the biochemical or biomedical field for certain of the requirements denoted by this footnote. These 12 credit hours are replaced with a 12-credit internship.

Suggested Sequence for B.S. Chemistry-Biology

Effective Fall 2021

1st Year

___ CHE 103	General Chemistry I	3	___ CHE 104	General Chemistry II	3
___ CRL 103	Gen. Chem I Lab	1	___ CRL 104	Gen. Chem. II Lab	1
___ BIO 110	General Biology I	4	___ BIO 111	General Biology II	4
___ FYE xxx	First Year Experience	4	___ WRT 120	Effective Writing I	3
___ MAT 161	Calculus I	4	___ MAT 125	Stats and Probability	3
			___ GEd xxx	B/SS (1)	3
		16			17

2nd Year

___ CHE 231	Organic Chemistry I	4	___ CHE 232	Organic Chemistry II	3
___ CRL 231	Org. Chem. I Lab	2	___ BIO 211	Cell Biology	4
___ BIO 210	Genetics	3	___ PHY 140	Physics 140 or PHY 180	4
___ BIO 210L	Genetics Lab	1	___ XXX xxx	Student Elective	3
___ PHY 130	Physics 130 or PHY 170	4	___ GEd xxx	B/SS (2)	3
___ WRT 2XX	Writing Course	3			
		17			17

___ Department Safety Examination

3rd Year

___ CHE 321	Analytical Chemistry I	3	___ BIO 468	Comp. Vert. Physiology©	4
___ CHE 476	Biochemistry I	3	___ YYY	Bio or Chem Elective ♣Δ§	4
___ CRL 476	Biochem I Lab	2	___ GEd xxx	Arts	3
___ BIO 357	Comp. Vert. Anatomy	4	___ XXX xxx	Student Elective	3
___ CHE 418	Chemical Information	1			
		13			14

4th Year

___ CHE 345	Physical Chemistry Life Sci	3	___ CHE 491	Chemistry Seminar	1
___ CRL 321	Analytical Chem I Lab§	2	___ CHE yyy	Chemistry Elective ♣§	3
___ CHE yyy	Chemistry Elective ♣§	3	___ XXX xxx	Student Elective	3
___ PHI 371	Medical Ethics [I]	3	___ GEdxxx	Humanities (2)	3
___ GEd xxx	Humanities (1)	3	___ GEd xxx	Student Elective	2
		14			12

Total Credits 120

___ ___ ___ Writing Emphasis Courses ___ ___ ___ Speaking Emphasis Courses ___ Diverse Communities ___ Ethics

© BIO 469 Human Physiology will also satisfy this requirement; however, be aware that BIO 469 is only offered in the Fall.

♣ Biology and Chemistry electives must be at the 300 level or above.

Δ A 3-credit course would be acceptable here, provided that the student takes enough classes to meet the 120-credit requirement.

§ Students may, with the permission of their academic advisor and department Chair, substitute

an approved internship in the biochemical or biomedical field for certain of the requirements given above (denoted by §). These 12 credit hours are replaced with a 12-credit hour internship.

The "I" requirement is satisfied by PHI 371.

The Mathematics General Education requirement is satisfied with MAT 161.

The Science General Education Distributive requirements are satisfied with BIO 110 and PHY 130 (or PHY 170).

Students must take 9 credits of "W" (writing emphasis) courses; at least 3 credits must be in 300 or 400 level courses.

Students must take 9 credits of "S" (speaking emphasis) courses; at least 3 credits must be in 300 or 400 level courses.

Students must take 3 credits of "J" (diverse communities) courses.

Students must take 3 credits of "E" (ethics) courses.

Students must take at least 120 credits.