

ADVISING SHEET:
B. S. IN BIOLOGY: MARINE SCIENCE CONCENTRATION
 Fall 2025 – Spring 2026

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 or 123 | 3 | _____ | _____ | _____ |
| Effective Writing II | WRT 200 | 3 | _____ | _____ | _____ |
| Mathematics: Statistics | MAT 121 [♦] or 125 [♦] | 3 | _____ | _____ | _____ |
| Interdisciplinary (“INT”) | _____ | 3 | _____ | _____ | _____ |
| Diverse Communities (“DIV”) | _____♥ | 3 | _____ | _____ | _____ |
| Ethics (“ETH”) | _____♥ | 3 | _____ | _____ | _____ |

Writing Emphasis (“WRT”) *Nine credits[♦], integrated across General Education & Major courses.*

| | | | | | |
|------------------------------|---------|-------|-------|-------|-------|
| | BIO 211 | 4 | _____ | _____ | _____ |
| | _____ | _____ | _____ | _____ | _____ |
| <i>One at 300/400-level:</i> | _____ | _____ | _____ | _____ | _____ |

Speaking Emphasis (“SPE”) *Nine credits[♦], integrated across General Education & Major courses.*

| | | | | | |
|------------------------------|-----------------|-------|-------|-------|-------|
| | _____ | _____ | _____ | _____ | _____ |
| | _____ | _____ | _____ | _____ | _____ |
| <i>One at 300/400-level:</i> | BIO 490/491/492 | 3 | _____ | _____ | _____ |

II. GENERAL EDUCATION DISTRIBUTIVE REQUIREMENTS

- *Courses must be selected from the approved General Education list (see the [catalog](#)).*
- *Interdisciplinary 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. 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 | _____ | _____ | _____ |

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

Courses must be selected from two different subject areas.

| | | | | |
|-------|---|-------|-------|-------|
| _____ | 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 – 16 credits (as many as needed to reach 120 total credits)

| | | | | |
|-------|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |

IV. SUPPORTING COURSES (31-32 credits)

| | | | | | |
|---|--------------------|-----|-------|-------|-------|
| Calculus ^{▲*} | MAT 143/145/161 | 3-4 | _____ | _____ | _____ |
| General Chemistry I Lecture | CHE 103 | 3 | _____ | _____ | _____ |
| General Chemistry I Lab | CRL 103 | 1 | _____ | _____ | _____ |
| General Chemistry II Lecture | CHE 104 | 3 | _____ | _____ | _____ |
| General Chemistry II Lab | CRL 104 | 1 | _____ | _____ | _____ |
| Organic Chemistry I Lecture | CHE 231 | 4 | _____ | _____ | _____ |
| Organic Chemistry I Lab | CRL 231 | 2 | _____ | _____ | _____ |
| Organic Chemistry II Lecture | CHE 232 | 3 | _____ | _____ | _____ |
| General Physics I – lecture + lab** | PHY 130 + PHY 130L | 4 | _____ | _____ | _____ |
| General Physics II – lecture + lab** | PHY 140 + PHY 140L | 4 | _____ | _____ | _____ |
| Intro Oceanography – lecture + lab*** ^{ΩΦ} | ESS 330 + ESS 330L | 3 | _____ | _____ | _____ |

V. BIOLOGY COURSES (40 credits) -- GPA must be 2.0 or higher to graduate.

A. Required Core Courses (19 credits)

| | | | | | |
|---------------------------------------|---|---|-------|-------|-------|
| General Biology I – lecture + lab*** | BIO 110 + BIO 110L | 4 | _____ | _____ | _____ |
| General Biology II – lecture + lab*** | BIO 111 + BIO 111L | 4 | _____ | _____ | _____ |
| Genetics Lecture*** | BIO 210 | 3 | _____ | _____ | _____ |
| Genetics Lab*** | BIO 210L | 1 | _____ | _____ | _____ |
| Cell Biology – lecture + lab*** | BIO 211 + BIO 211L | 4 | _____ | _____ | _____ |
| Biology Capstone*** ^Δ | BIO 490 + BIO 490S or BIO 491 or BIO 492 | 3 | _____ | _____ | _____ |

B. Other Required Courses (12 credits)

| | | | | | |
|---|--------------------|---|-------|-------|-------|
| General Ecology – lecture + lab*** | BIO 270 + BIO 270L | 3 | _____ | _____ | _____ |
| Biostatistical Applications – lecture + Lab | BIO 310 + 310L | 3 | _____ | _____ | _____ |
| Marine Botany – lecture | BIO 312 | 3 | _____ | _____ | _____ |
| Marine Biology – lecture | BIO 313 | 3 | _____ | _____ | _____ |

C. Marine Science Electives ^Δ (9 credits)

Select courses under advisement from the Biology Department's approved list below. 6 credits are to be chosen at the 300 to 400-level. Student-originated requests to use a course not on the list to fulfill this requirement must be approved by their Advisor, then by the Department Chair.

| | | | | |
|-------|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |

West Chester Courses:

BIO 387 Invertebrate Zoology
BIO 453 Marine Mammals
ESS 332 Advanced Oceanography
GEO 324 Introduction to GIS

Cheyney Courses:

SLF 330 Marine Invertebrates
SLF 332 Ichthyology

Wallops Island/Marine Field Station Courses (all 3-credit courses):

- Courses are to be chosen from two or more topics including but not limited to: marine or wetlands ecology, ichthyology, invertebrate zoology, marine mammals, ornithology, marine molecular biology, and biotechnology
- Courses to be completed at the Wallops Island Marine Science Consortium and other marine field stations (summer and winter sessions) will be approved on an individual basis and will require Advisor and Department approval.

Notes and Requirements

Total degree program: 120 credits.

♥ The Diverse Communities (“DIV”) course and the Ethics (“ETH”) courses can be satisfied through another requirement (e.g., General Education 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).

♣ Students must take at least 9 credits of Writing Emphasis courses and 9 credits of Speaking Emphasis courses. Students who enter WCU with 30-60 transfer credits only need 6 credits of each; students who enter with 61-90 transfer credits only need 3 credits of each. **All students with < 91 transfer credits must take at least 3 credits of Writing Emphasis and 3 credits of Speaking Emphasis at the 300-400 level.** Students who enter WCU with > 90 transfer credits are exempt from all Writing and Speaking Emphasis courses.

♦ 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 students will need to complete the Math Placement Exam before they can enroll in MAT courses. For information, please visit the [Math Department website](http://mathexam@wcupa.edu). Please direct any questions to mathexam@wcupa.edu.

* 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 60 or lower on the exam, you must take MAT 113 (Algebra and Functions) or MAT 115 (Algebra, Functions, and Trigonometry) as preparation for Calculus (MAT 143 or MAT 145). If you score a 44 or lower, you will need to take MAT 112 (Algebra and Functions with Support) before you can enroll in MAT 113 or MAT 115. If you score 29 or lower, you will need to take MAT Q30 before you can enroll in MAT 112. If you receive a score of 61 or above, you can enroll directly into MAT 143 or MAT 145. You must score a 75 or above to enroll into MAT 161 or take the pre-requisite of MAT 131. Students can repeat the math placement exam to improve their score.

** 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.

[△] Students may only do one Capstone course (BIO 490/491/492). Students taking BIO 490/491/492 must be aware that they are fulfilling a Capstone requirement, the credits will not also count as Biology Electives. A maximum of 3 combined credits from BIO 391 and BIO 392 may be applied to the total Biology Elective credits.

^Φ Core Courses of the Marine Science concentration.

^Ω Marine Science majors are exempt from the pre-requisites of ESS 101 for ESS 330 (Introduction to Oceanography).

Suggested Sequence for B.S. Biology Majors

Marine Science Concentration

Fall 2025 – Spring 2026

| | | | |
|-------|--|-------|---|
| _____ | Semester #1 (15 credits) FYE 100 (4) WRT 120 (3) BIO 110 + 110L (4) CHE 103 (3) & CRL 103 (1) | _____ | Semester #2 (17 credits) WRT 200 (3) BIO 111 + 111L (4) CHE 104 (3) & CRL 104 (1) MAT 121 or MAT 125 (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 Course (ETH) (3) | _____ | Semester #4 (16-17 credits) BIO 211 + 211L (WRT) (4) CHE 232 (3) BIO 313 (3) MAT 145 (3) or MAT 143 (3) /161 (4) Gen Ed Distributive: Behavioral & Social Science (3) |
| _____ | Semester #5 (16 credits) BIO 270 + 270L (3) PHY 130 + 130L (4) ESS 330 + 330L (3) Diverse Communities Course (DIV) (3) Directed Elective (3) | _____ | Semester #6 (16 credits) BIO 310 + 310L (3) BIO 312 (3) PHY 140 + 140L (4) Interdisciplinary Course (INT) (3) Speaking Emphasis Course (SPE) (3) |
| _____ | Semester #7 (12 credits) Marine Science Elective (3) Marine Science Elective (3) Upper-level Directed Elective (WRT)(3) Gen Ed Distributive: Humanities (3) | _____ | Semester #8 (12 credits) Marine Science Elective (3) Directed Elective (3) Directed Elective (3) (if needed) BIO 490/491/492 (SPE) (3) |

- All required 200 level Biology courses should be completed by the end of Semester #5.
- Students should take Statistics (MAT 121 or 125) in the first year.
- Students may choose to take MAT 145, 143 or 161 Semester 4.
- Students must take at least 9 credits of Writing Emphasis courses and 9 credits of Speaking Emphasis courses. Students who enter WCU with 30-60 transfer credits only need 6 credits of each; students who enter with 61-90 transfer credits only need 3 credits of each. **All students with < 91 transfer credits must take at least 3 credits of Writing Emphasis and 3 credits of Speaking Emphasis at the 300-400 level.** Students who enter WCU with > 90 transfer credits are exempt from all Writing and Speaking Emphasis courses.