



North Central Michigan College

2025/26

Western Michigan University Biology Curriculum Guide

Pre-biology requirements:

- The following courses are the prerequisites for biology, biomedical sciences, and biology-secondary education (high school level) majors.
- This major is a good choice for students going into entry-level employment in the field of biology, biology graduate programs, or professional schools such as physician assistant, physical therapy, medical, dental, and veterinary schools.
- A **minimum of 15 credits of biology** must be earned at WMU for the major.
- Only departmental courses in which a grade of “C” or better is obtained may be counted toward a major or minor in Biological Sciences.

WMU courses		NCMC course
BIOS 1610	Molecular & Cellular Biology	BIO 151
BIOS 1620	Ecology & Evolution	BIO 152
BIOS 2110	Human Anatomy	BIO 235
CHEM 1100 1110	General Chemistry I & Lab I	CEM 121
CHEM 1120 1130	General Chemistry II & Lab II	CEM 122
CHEM 3750 3760	Organic Chemistry I & Lab I	CEM 231
CHEM 3770 3780	Organic Chemistry II & Lab II	CEM 232
PHYS 1130 1140	General Physics I & Lab I	PHY 210
PHYS 1150 1160	General Physics II & Lab II	PHY 211
MATH 1220 or 2000	Calculus I or Calc with Applications	MATH 150
STAT 2160	Introductory Statistics	STAT 200

General education requirements:

- Please refer to the [WMU Essential Studies \(WES\) transfer guide](#) that lists courses meeting WES requirements at WMU that may be taken at NCMC.
- All students graduating from the College of Arts & Sciences must complete the College of Arts and Sciences Essentials (**CASE**). This includes world language proficiency (detailed in next bullet point), ENGL 1050/1060 sequence, and by completing the baccalaureate writing requirement.

- All students graduating from the College of Arts & Sciences must meet the world language proficiency by completing two semesters (6-8 hours) of the same foreign language or American Sign Language or passing WMU's proficiency by exam. Please contact the College of Arts & Sciences Undergraduate Advising Office at (269) 387-4366 with any questions. Neither the MACRAO Agreement nor the Michigan Transfer Agreement satisfy the world language requirement.
 - If the student's first language is not English, the student is exempt from this requirement. Determination of eligibility for this exemption is based on whether the student was required to take the TOEFL test for admission and can be verified through the WMU departments of Spanish or World Languages and Literatures.
- You may email the WMU advisors in the College of Arts & Sciences for further clarification about **WES or CASE**.

Important notes:

- The chemistry, physics, and mathematics courses are called "cognate" requirements for biology department majors and may not be waived.
- The physics and chemistry courses have a minimum prerequisite of successful completion of high school advanced algebra (**MATH 120 at NCMC**).
- For questions about **WES** or biology major requirements please contact the WMU College of Arts & Sciences Biology advisor at the email address given below.
- Prior to enrolling in WMU courses, students should consult the biology advisor listed below.

Approved by:

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 (269) 387-4366

For general education advising or world language requirement questions:
wmich.edu/arts-sciences/advising