

Biology Major

Professor: G. McNett
Associate Professor: D. Holliday, D. Schmidt
Assistant Professor: M. Loehr, M. Howell J. Morrow,

Contact: Dr. Dawn Holliday
Email: dawn.holliday@wcmo.edu

The Department of Biology and Environmental Science offers a major program of study leading to the Bachelor of Arts in Biology as well as a minor in Biology. Introductory courses are designed to meet the several needs and interests of Westminster liberal arts students. Biological Process and Biodiversity fulfill the Tier II (New Foundations) or a Science Inquiry Theme (Breakthrough) requirement for a course in laboratory science as well as serving as foundation courses for students considering a major in biology and several related fields.

Students completing a Biology Major may not also receive a Biochemistry Major, One Health major, or Biology Minor. In order to earn a major in Biology, students must earn a letter grade of C- or better in all listed courses needed to satisfy major requirements. At least 50% of all Biology hours used to satisfy the major (20-22) must be Westminster courses.

OTHER RECOMMENDATIONS

All biology majors must complete either MAT 114 or MAT 124. We highly recommend that students complete both courses, in particular those students who wish to enter graduate or healthcare professional school. Please note that for students who do not meet the prerequisites for these courses there are other math courses offered to help students prepare for this requirement (i.e. MAT 090, Intermediate Algebra and MAT 111, College Algebra). For Students who plan to enter a healthcare professional school we also recommend PHY 201, Physics I and PHY 212, Physics II. The Biology Department highly recommends that its students also have a strong foundation in Chemistry. In particular for those students who plan to enter graduate or healthcare professional school, we recommend the following courses:

CHM 114/115	General Chemistry I
CHM 124/125	General Chemistry II
CHM 314/315	Organic Chemistry I
CHM 324/325	Organic Chemistry II

Biology Honors: This designation would be given for Biology majors who meet the following criteria.

1. GPA \geq 3.3 average for all BIO courses
2. Two semesters for Independent, hypothesis-driven research

- a) Preferable: A single project carried out over 2 semesters for a total of 4-6 hours of independent study
 - b) Alternatively:
 - i) Two single semester projects for a total of 4-6 hours of independent study
 - ii) A summer Research Experience for Undergraduates (REU) or similar type of research experience and a single semester (2-3 hours). These projects MUST be pre-approved and must be accompanied by a formal campus presentation.
3. A formal thesis/paper that is evaluated by at least two faculty members
 4. An oral or poster presentation at the Undergraduate Scholars forum or at a local, regional, or national conference.

**Note that placement of experimental courses (marked with asterisks) within the minor is subject to change.

ACADEMIC REQUIREMENTS SUMMARY SHEET

ACADEMIC YEAR 2024-2025

Major: BIOLOGY

Student's Last Name	First Name	Middle Initial
---------------------	------------	----------------

Advisor	Date Major Declared
---------	---------------------

Course Code	Title	Hours	Semester	Grade
Level One Introductory Courses (This level MUST be completed before level II (8 hours))				
BIO 114/115	Biological Processes	4		
BIO 124/125	Biodiversity	4		
Level Two Intermediate Courses (Students take 2 of the following courses. At least 1 course from this group MUST be completed before Level III. The 2nd course MUST be completed by the end of the Junior year (8 hours).)				
BIO 205	Ecology and Field Biology	4		
BIO 212	Research Methods	3		
Bio 301	Genetics	4		
BIO 302	Human Anatomy	4		
Level Three Advanced Courses (18-20 hours): Students must take 5 courses with at least one course from each track and at least 3 of the courses must include a laboratory experience. One course may be a third course from Level Two. Independent research may count for one course (3-4 hours) for the Level Three requirement. Completion of at least one WI/WIO course in the major is highly recommended. *Note: some courses in Level Three may have specific prerequisites from Level Two.				
<i>A Cellular Biology, Molecular Biology & Human Health</i>				
BIO 304	Immunology	3		
BIO 303	Microbiology (BIO 114/115 & 124/125 prerequisite)	4		
BIO 314	Vertebrate Histology (Ind. Study only)	3-4		
BIO 325	Molecular Cell Biology	4		
BIO 330	Virology (BIO 301 recommended)	3		
BIO 372	Developmental Biology (BIO 301 prerequisite)	4		
BIO 398	Ind. Research (cell./human health focus)	3-4		
BIO 404	Biochemistry (CHM 314/315 prerequisite, 324/325 co-requisite)	4		

Course Code	Title	Hours	Semester	Grade
BIO 415	Human Gross Anatomy (BIO 302 prereq)	4		
BIO 420	Physiology (BIO 302 prereq)	4		
<i>B Organismal Biology</i>				
BIO 204	Animal Behavior	4		
BIO 208	Functional Plant Morphology	4		
BIO 315	Entomology	4		
BIO 318	Ornithology	4		
GEO 335	Paleontology	4		
BIO 398	Ind. Research (Organismal focus)	3-4		
<i>C Ecosystems: Characteristics, Processes & Management</i>				
BIO 210	Biogeography	3		
BIO 310	Environmental Toxicology	3		
BIO 320/321	Biology in Belize (or other equivalent travel course)	4		
ENV 350	Conservation Biology	3		
BIO 398	Ind. Research (ecosys./ecological focus)	3-4		
	Capstone Course (must be completed in the Junior or Senior Year)	3		
BIO 450	Evolution (BIO 301 recommended)	3		
Other Required Courses (3-5 hours)				
<i>Choose one mathematics course</i>				
MAT 114	Elementary Statistics	3		
MAT 124	Calculus I	5		
Total Hours For Major		38-42		

If any substitutions or waivers of requirements are allowed, please list below and initial.

Advisor Signature

Department Chair Signature