

# Degree Worksheet for the College of Arts and Sciences: 2023-2024

## B.S. BIOLOGY with Concentration in Microbiology, Molecular, and Cellular Biology (MMCB)

### COLLEGE of ARTS & SCIENCES Language Requirement

**All students** who major in the College of Arts & Sciences are required to demonstrate competence in a second language. For complete details:

<https://www.gonzaga.edu/college-of-arts-sciences/about/information-for-students/language-requirement-information>

Credits Sem/Yr

	Credits	Sem/Yr
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### UNIVERSITY CORE REQUIREMENTS:

#### ► FUNDAMENTAL CORE COURSES

##### Year 1: Understanding & Creating

Writing		Credits	Sem/Yr
ENGL 101 Writing	(fulfills 3 credits Writing Enriched)*	3	
Reasoning			
PHIL 101 Reasoning		3	
First Year Seminar			
Dept. 193		3	
Communication & Speech			
COMM 100 Communication & Speech		3	
Math			
MATH	(must be above Math 100)	3	
Scientific Inquiry (2cr + 1cr lab) **			
BIOL or CHEM or PHYS 104/104L	(taken year 1 or 2)	3	

##### Year 2: Being & Becoming

Christianity & Catholic Traditions		Credits	Sem/Yr
RELI	(see approved list)**	3	
Philosophy of Human Nature			
PHIL 201 Philosophy of Human Nature		3	

##### Year 3: Caring & Doing

World/Comparative Religion		Credits	Sem/Yr
RELI	(see approved list)** (fulfills 3cr Global Studies)*	3	
Ethics			
PHIL 301 Ethics or RELI 330 Principles-Christian Morality		3	

##### Year 4: Imagining the Possible

Core Integration Seminar		Credits	Sem/Yr
Dept. 432		3	

**NOTE: some courses have pre-requisites, check the catalog carefully!**

#### ► BROADENING COURSES - see approved list\*\*

Social & Behavioral Science		Credits	Sem/Yr
		3	
Literature			
		3	
History			
		3	
Fine Arts & Design			
		3	

#### ► REQUIRED COURSE DESIGNATIONS - see approved list\*\*

*Writing Enriched		Credits	Sem/Yr
		9 total	
Social Justice			
		3 total	
*Global Studies			
		6 total	

**\*\*for list of approved RELI, Broadening & Designated courses, see :**  
<https://my.gonzaga.edu/academics/undergraduate-programs/general-degree-requirements-procedures/university-core>

**\*\*BIOL 105/105L meets the Scientific Inquiry requirement of the University Core for Biology Majors & Minors.**

\*Students must earn C- grade or better in BIOL 105/105L & BIOL 106 to take BIOL 205, 206, or 207. Students must also get C- grade or better in BIOL 205/205L, 206/206L, 207/207L & BIOL 399 to take BIOL 499. Credits from BIOL 497 Biology Internship, do not satisfy any requirements for the Biology Major or Minor.

Upper division BIOL electives: minimum of 10 credits(BS), 6 credits(BA), or 4 credits(Minor) must be taken from Gonzaga faculty. Study abroad students take note.

**ALL courses should be chosen in consultation with a Biology faculty advisor.**

### B.S. BIOLOGY-Microbiology, Molecular, & Cellular Biology Concentration (MMCB)

#### LOWER DIVISION

**46 Credits**

Course	Course Title	Credits	Grade
BIOL 105 & 105L	Info Flow in Biological Systems + Lab**	3	
BIOL 106	Energy Flow in Biological Systems	3	
BIOL 205 & 205L	Physiology & Biodiversity & Lab	4	
BIOL 206 & 206L	Ecology & Lab	4	
BIOL 207 & 207L	Genetics & Lab	4	
CHEM 101 & 101L	General Chemistry & Lab	4	
CHEM 230 & 230L	Organic Chemistry I & Lab	5	
CHEM 231 & 231L	Organic Chemistry II & Lab	4	
CHEM 245 & 245L	Biochemistry & Lab	4	

#### Choose one of the following sets of courses + labs:

PHYS 111 & 111L	General Physics I & Lab	5	
PHYS 121 & 121L	Physics I & Lab	5	

#### Choose one of the following sets of courses + labs:

PHYS 112 & 112L	General Physics II & Lab	5	
PHYS 122 & 122L	Physics II & Lab	5	

#### Choose one of the following Math or Statistics courses:

MATH 148	Survey of Calculus	3	
MATH 157	Calculus-Analytical Geometry I	3	
MATH 221	Applied Statistics	3	
BIOL 305	Biological Data Analysis	4	

#### UPPER DIVISION

BIOL 399	Advanced Topics	2	
BIOL 495	Senior Evaluation	0	
BIOL 499	Senior Colloquium	1	

#### Biology & Other Science Electives:

**15 Credits**

##### Group A: Choose one from the following courses + labs:

**4 credits**

BIOL 351 & 351L	Cell Biology + Lab	4	
BIOL 370 & 370L	Microbiology + Lab	4	
BIOL 456 & 456L	Molecular Biology + Lab	4	

##### Group B: Choose one from the following:

**3-4 credits**

BIOL 335	Advanced Genetics	3	
BIOL 337	Developmental Biology	3	
BIOL 351 & 351L	Cell Biology + Lab	4	
BIOL 451 & 451L	Comparative Endocrinology + Lab	4	
BIOL 456 & 456L	Molecular Biology + Lab	4	
BIOL 498	Approved Research	4	

##### Group C: Choose one from the following:

**3-4 credits**

BIOL 305	Biological Data Analysis	3	
BIOL 331	Parasitology	3	
BIOL 370 & 370L	Microbiology + Lab	4	
BIOL 374	Immunology	3	
BIOL 375	Virology	3	
BIOL 441 & 441L	Neurophysiology + Lab	4	
BIOL 498	Approved Research	4	

#### Choose at least three credits from the following to complete the required 15 credits of Biology & Other Science electives:

**3-4 credits**

BIOL 301-498, incl. listed above, not used		
CHEM 310 and higher		
CPSC 121 and higher		
MATH 221 and higher, if not used above		
PHYS 205 and higher		