

# College of Arts and Sciences 2025-2026 Degree Worksheet

## B.S. APPLIED MATHEMATICS with Biology Concentration

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### 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

### UNIVERSITY CORE REQUIREMENTS: FUNDAMENTAL CORE COURSES

#### Year 1: Understanding & Creating

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

#### Year 2: Being & Becoming

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

#### Year 3: Caring & Doing

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

#### Year 4: Imagining the Possible

	Credits	Sem/Yr
<i>Core Integration Seminar</i>		
Dept. 432	3	

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

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

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

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

	Credits	Sem/Yr
*Writing Enriched	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>

## B.S. APPLIED MATHEMATICS: 68 CREDITS with Biology Concentration

### APPLIED MATHEMATICS 34 Credits

#### LOWER DIVISION 18 Credits

	Course	Course Title	Credits
	MATH 157	Calculus & Analytic Geometry I	4
	MATH 258	Calculus & Analytic Geometry II	4
	MATH 259	Calculus & Analytic Geometry III	4
	MATH 260	Ordinary Differential Equations	3
	CPSC 121	Computer Science I	3

#### UPPER DIVISION 10 Credits

	MATH 301	Fundamentals of Mathematics	3
	MATH 350	Numerical Methods	3
	MATH 413	Real Analysis I	3
	MATH 496	Comprehensive-Applied Math	1

#### Select one of the following two courses: 3 Credits

	MATH 335	Applied Linear Algebra	3
	MATH 339	Linear Algebra	3

#### Select one of the following two courses: 3 Credits

	MATH 321	Statistics for Experimentalists	3
	MATH 422	Mathematical Statistics	3

*If MATH 422 is chosen, then one MATH 400 level elective may be replaced by a MATH 300 level elective.*

### BIOLOGY CONCENTRATION 34 Credits

#### 11 Credits

	CHEM 101/101L	General Chemistry+Lab	4
	BIOL 105/105L	Info Flow-Biological System+Lab	4
	BIOL 106	Energy Flow-Biological Systems	3

#### Select one of the following three courses: 3 Credits

	MATH 440	Foundations of Applied Math	3
	MATH 454	Partial Differential Equations	3
	MATH 462	Nonlinear Systems & Chaos	3

#### Select two of the following three course options: 8 Credits

	BIOL 205/205L	Physiology & Biodiversity+Lab	4
	BIOL 206/206L	Ecology+Lab	4
	BIOL 207/207L	Genetics+Lab	4

#### Select two Biology 300-400 level electives: 6 Credits

	BIOL	3
	BIOL	3

#### Select two 400-level Math electives: 6 Credits

	MATH	3
	MATH	3

*Cannot double count with another requirement.*

*Cannot use MATH 335, 339, 432, or 499 as MATH electives.*

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A maximum of three (3) total credits from the following may be counted toward Math electives: MATH 365 (may be taken for credit only once), MATH 390, MATH 490, MATH 497.

**Selection list for two Biology 300-400 level electives:**

*Cannot double count with another requirement.*

- BIOL 303 Population Ecology
- BIOL 313 Animal Behavior
- BIOL 323 Conservation Biology
- BIOL 331 Parasitology
- BIOL 333 Community Ecology
- BIOL 334 Advanced Evolution
- BIOL 335 Advanced Genetics: Selected Topics
- BIOL 337 Developmental Biology
- BIOL 338 Histology
- BIOL 340 Field Botany
- BIOL 341 Human Physiology
- BIOL 343 Plant Community Ecology
- BIOL 344 Intro to GIS in Biology
- BIOL 357 Principles of Wildlife Management
- BIOL 360 Plant Biology
- BIOL 367 Entomology
- BIOL 371 Vertebrate Biology & Anatomy
- BIOL 399 Advanced Topics
- BIOL 403 Marine Biology
- BIOL 420 Physiological Ecology
- BIOL 441 Advanced Physiology
- BIOL 451 Comparative Endocrinology

*(other courses may be considered on a case-by-case basis)*

**Check the catalog for pre-requisites when selecting electives**

*BIOL 334, 337, and 451 are allowed as Biology electives, but require BIOL 205, 206, and 207 as pre-requisites.*

*Up to 2 credits may come from labs associated with any of these courses.*