

College of Arts and Sciences 2025-2026 Degree Worksheet
B.S. APPLIED MATHEMATICS
with BIOLOGY & STATISTICS 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/lanquage-requirement-information>

Credits Sem/Yr

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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	<input type="checkbox"/>
<i>Reasoning</i>		
PHIL 101 Reasoning	3	<input type="checkbox"/>
<i>First Year Seminar</i>		
Dept. 193	3	<input type="checkbox"/>
<i>Communication & Speech</i>		
COMM 100 Communication & Speech	3	<input type="checkbox"/>
<i>Math</i>		
MATH (must be above Math 100)	3	<input type="checkbox"/>
<i>Scientific Inquiry (2cr + 1cr lab)</i>		
BIOL or CHEM or PHYS 104/104L (taken year 1 or 2)	3	<input type="checkbox"/>

Year 2: Being & Becoming

	Credits	Sem/Yr
<i>Christianity & Catholic Traditions</i>		
RELI (see approved list)**	3	<input type="checkbox"/>
<i>Philosophy of Human Nature</i>		
PHIL 201 Philosophy of Human Nature	3	<input type="checkbox"/>

Year 3: Caring & Doing

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

Year 4: Imagining the Possible

	Credits	Sem/Yr
<i>Core Integration Seminar</i>		
Dept. 432	3	<input type="checkbox"/>

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

BROADENING COURSES - see approved list**

	Credits	Sem/Yr
Social & Behavioral Science	3	<input type="checkbox"/>
Literature	3	<input type="checkbox"/>
History	3	<input type="checkbox"/>
Fine Arts & Design	3	<input type="checkbox"/>

REQUIRED COURSE DESIGNATIONS - see approved list**

	Credits	Sem/Yr
*Writing Enriched	9 total	<input type="checkbox"/>
Social Justice	3 total	<input type="checkbox"/>
*Global Studies	6 total	<input type="checkbox"/>

****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: 77 CREDITS
with BIOLOGY & STATISTICS DOUBLE 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

Course	Course Title	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 and STATISTICS DOUBLE CONCENTRATION 43 Credits

	Credits	
14 Credits		
MATH 421	Probability Theory	3
CHEM 101/101L	General Chemistry + Lab	4
BIOL 105/105L	Info Flow-Biological Systems + Lab	4
BIOL 106	Energy Flow-Biological Systems	3

Select one of the following two courses: 3 Credits

MATH 425	Applied Statistical Models	3
MATH 426	Experimental Design	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

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Select two Biology 300-400 level electives:	6 Credits	
BIOL	3	
BIOL	3	

Select one 300-400 level Math elective:	3 Credits
MATH	3

Cannot double-count with another requirement

Selection list for 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)

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

Check the catalog for pre-requisites when selecting electives

Select two Statistics electives:	6 Credits
MATH	3
	3

Cannot double-count with a course used elsewhere.

At least one course must be MATH.

MATH Electives:

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

Cannot double-count with a requirement used elsewhere

- MATH 422 Mathematical Statistics
 - MATH 423 Stochastic Processes
 - MATH 426 Experimental Design
 - ECON 355 Regression Analysis
 - ECON 451 Econometrics
 - ECON 452 Time Series Analysis
 - CPSC 322 Data Science Algorithms
 - CPSC 323 Machine Learning & Intelligent Systems
 - CPSC 324 Big Data Analytics
 - PHYS 323 Statistical Mechanics
 - PSYC 450 Advanced Statistics in Psychology
- Or any course with significant probability or statistics content with the **prior** approval of the Math Department Chair.*

ALL of these courses have pre-requisites, and may require courses outside of the concentration to be taken.