

College of Arts and Sciences 2024-2025 Degree Worksheet
B.S. APPLIED MATHEMATICS
with BIOCHEMISTRY and STATISTICS DOUBLE 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
Writing		
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

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

Year 3: Caring & Doing

	Credits	Sem/Yr
World/Comparative Religion		
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

	Credits	Sem/Yr
Core Integration Seminar		
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: 76 CREDITS
with BIOCHEMISTRY & STATISTICS DOUBLE CONC.

APPLIED MATHEMATICS 34 Credits

LOWER DIVISION			18 Credits	
	Course	Course Title	Credits	Grade
	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			13 Credits	
	MATH 301	Fundamentals of Mathematics	3	
	MATH 350	Numerical Methods	3	
	MATH 413	Real Analysis I	3	
	MATH 496	Comprehensive-Applied Math	1	

One of the following two courses:			3 Credits	
	MATH 335	Applied Linear Algebra	3	
	MATH 339	Linear Algebra	3	

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.

BIOCHEMISTRY and STATISTICS
DOUBLE CONCENTRATION 42 Credits

DOUBLE CONCENTRATION			24 Credits	
	MATH 421	Probability Theory	3	
	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	
	CHEM 399	Advanced Topics	2	
	CHEM 407	Special Topics in Biochemistry	2	

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	

One of the following two courses:			3 Credits	
	MATH 425	Applied Statistical Models	3	
	MATH 426	Experimental Design	3	

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Select two Statistics electives:	6 Credits	
MATH	3	
	3	

*Cannot double-count with a course used elsewhere.
 At least one course must be MATH.*

Selection list for two 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.

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

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

Cannot double-count with a required course.

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

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

Check the catalog for pre-requisites when selecting electives