

College of Arts and Sciences 2024-2025 Degree Worksheet
B.S. APPLIED MATHEMATICS with
ENVIRONMENTAL SCIENCE 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
<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 & 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 & 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
<i>Social & Behavioral Science</i>			
	3		
<i>Literature</i>			
	3		
<i>History</i>			
	3		
<i>Fine Arts & Design</i>			
	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: 77 CREDITS
 with ENVIRONMENTAL SCIENCE and
 STATISTICS DOUBLE CONCENTRATION

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

10 Credits

Course	Course Title	Credits	Grade
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.

**ENVIRONMENTAL SCIENCE and
 STATISTICS DOUBLE CONCENTRATION**

43 Credits

	Credits	Sem	Yr
MATH 421	Probability Theory	3	

Select one of the following two courses:

3 Credits

MATH 425	Applied Statistical Models	3	
MATH 426	Experimental Design	3	

14 Credits

ENVS 101	Introduction to Environmental Studies	3	
ENVS 103/103L	Environmental Biology+Lab ⁽¹⁾	4	
ENVS 320	Economics of Environmental Protection ⁽³⁾	3	
ENVS 384/384L	GIS and Ecological Techniques ⁽⁴⁾	4	

Select one of the following two course options:

4 Credits

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

Select one of the following two course options:

4 Credits

ENVS 110/110L	Intro to Earth Systems+Lab	4	
ENVS 202/202L	Chemistry & the Environment+Lab ⁽²⁾	4	

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**B.S. APPLIED MATHEMATICS with
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Select <u>three</u> Statistics electives:	9 Credits
MATH	3 <input type="checkbox"/>
MATH	3 <input type="checkbox"/>
	3 <input type="checkbox"/>

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

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 you to take courses outside of the concentration.

Select one of the following three courses:	3 Credits
MATH 440 Foundations of Applied Math	3 <input type="checkbox"/>
MATH 454 Partial Differential Equations	3 <input type="checkbox"/>
MATH 462 Nonlinear Systems and Chaos	3 <input type="checkbox"/>

Select one 300-400 level Math elective:	3 Credits
MATH	3 <input type="checkbox"/>

Cannot double-count with another requirement.

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.

ENVS COURSES:

⁽¹⁾*Alternative: BIOL 206/206L (cross-listed, pre-requisite BIOL 105/106).*

⁽²⁾*Pre-requisite CHEM 101/101L.*

⁽³⁾*Alternative: ECON 324 (cross-listed, pre-requisite ECON 200 or 201).*

⁽⁴⁾*Alternative: BIOL 344/344L (cross-listed, pre-requisite BIOL 106/206).*