

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

## B.S. APPLIED MATHEMATICS with Environmental Science Concentration

### 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

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>

### B.S. APPLIED MATHEMATICS: 68 CREDITS with Environmental Science 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

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 CONCENTRATION

34 Credits

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

##### Select one of the following two course options:

4 Credits

CHEM 101/101L	General Chemistry+Lab	4	
BIOL 105/105L	Info Flow-Biological Systems+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 <sup>(2)</sup>	4	

##### Select two of the following five courses:

6 Credits

MATH 425	Applied Statistical Models	3	
MATH 426	Experimental Design	3	
MATH 440	Foundations of Applied Math	3	
MATH 454	Partial Differential Equations	3	
MATH 462	Nonlinear Systems and Chaos	3	

##### Select one 300-400 level Math elective:

3 Credits

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

3 Credits

MATH		3	
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Cannot double-count with another requirement.

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

<sup>(2)</sup> Pre-requisite CHEM 101/101L.

<sup>(3)</sup> Alternative: ECON 324 (cross-listed, pre-requisite ECON 200 or 201).

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

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.