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: **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**

Course	Course Title	Credits	Grade
MATH 335	Applied Linear Algebra	3	
MATH 339	Linear Algebra	3	

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

Course	Course Title	Credits	Grade
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**

3 Credits

Course	Course Title	Credits	Grade
MATH 421	Probability Theory	3	

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

Course	Course Title	Credits	Grade
MATH 425	Applied Statistical Models	3	
MATH 426	Experimental Design	3	

14 Credits

Course	Course Title	Credits	Grade
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**

Course	Course Title	Credits	Grade
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**

Course	Course Title	Credits	Grade
ENVS 110/110L	Intro to Earth Systems+Lab	4	
ENVS 202/202L	Chemistry & the Environment+Lab [2]	4	

CONTINUED FROM Page 1

Select <u>*three*</u> *Statistics electives:*	*9 Credits*	
MATH	3	
MATH	3	
	3	

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	450	Statistical Physics

Or any course with significant probability or statistics content
with the <u>***prior***</u> *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 of the following three courses:	*3 Credits*	
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	

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).*