College of Arts and Sciences 2024-2025 Degree Worksheet
B.S. APPLIED MATHEMATICS
with PHYSICS 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: 74 CREDITS
with **Physics & 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	
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.

PHYSICS & STATISTICS CONCENTRATION   **40 Credits**

			3 Credits	
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	

			10 Credits	
PHYS	121/121L	Physics I + Lab	5	
PHYS	122/122L	Physics II + Lab	5	

Select two of the following four courses:			*6 Credits*	
MATH	417	Complex Variables	3	
MATH	440	Foundations of Applied Math	3	
MATH	454	Partial Differential Equations	3	
MATH	462	Nonlinear Systems & Chaos	3	

Select two 200-300-400 level PHYS electives:		*6 Credits*	
PHYS		3	
PHYS		3	

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 another requirement.

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Physics 200, 300, 400 Electives Options:

- PHYS 205 Modern Physics
- PHYS 301 Intermediate Mechanics
- PHYS 306 Electricity & Magnetism
- PHYS 307 Optics
- PHYS 402 Advanced Mechanics
- PHYS 407 Electricity & Magnetism II
- PHYS 409 Nuclear & Particle Physics*
- PHYS 415 Cosmology & Astrophysics
- PHYS 450 Statistical Physics
- PHYS 464 Intro to Quantum Physics*
  - ** (PHYS 409 & 464 require PHYS 205 as a pre-requisite)*

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.

Check 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.

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