

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

B.S. APPLIED MATHEMATICS with Physics 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>

Check for pre-requisites when selecting electives!

MATH: 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.

B.S. APPLIED MATHEMATICS: with Physics Concentration

65 CREDITS

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 CONCENTRATION

31 Credits

10 Credits

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

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	
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Select two 400-level Math electives:

6 Credits

MATH		3	
MATH		3	

Cannot double-count with another requirement.

Options for Physics 200, 300, 400 Electives:

- PHYS 224 Modern Physics
- PHYS 321 Classical Mechanics
- PHYS 322 Electricity & Magnetism
- PHYS 323 Statistical Mechanics
- PHYS 324 Quantum Mechanics*
- PHYS 424 Advanced Quantum Mechanics***
- PHYS 451 Fields, Oscillations, and Relativity**
- PHYS 452 Optics
- PHYS 453 Solid State Physics*
- PHYS 454 Nuclear & Particle Physics*
- PHYS 455 Cosmology & Astrophysics
- PHYS 456 Biophysical Systems and Modeling

* PHYS 324, 453, & 454 require PHYS 224 as a pre-requisite

** PHYS 451 requires PHYS 224, 321, & 322 as pre-requisites

*** PHYS 424 requires PHYS 324 as a pre-requisite