

Degree Worksheet for the College of Arts and Sciences: 2020-2021 B.S. APPLIED MATHEMATICS - Physics Concentration

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COLLEGE of ARTS & SCIENCES

**B.S. APPLIED MATHEMATICS:
Physics Concentration**

65 CREDITS

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	<input type="text"/>
<i>Reasoning</i>		
PHIL 101 Reasoning	3	<input type="text"/>
<i>First Year Seminar</i>		
Dept. 193	3	<input type="text"/>
<i>Communication & Speech</i>		
COMM 100 Communication & Speech	3	<input type="text"/>
<i>Math</i>		
MATH (must be above Math 100)	3	<input type="text"/>
<i>Scientific Inquiry (2cr + 1cr lab)</i>		
BIOL or CHEM or PHYS 104/104L (taken year 1 or 2)	3	<input type="text"/>

Year 2: Being & Becoming

		Credits Sem/Yr
<i>Christianity & Catholic Traditions</i>		
RELI (see approved list)**	3	<input type="text"/>
<i>Philosophy of Human Nature</i>		
PHIL 201 Philosophy of Human Nature	3	<input type="text"/>

Year 3: Caring & Doing

		Credits Sem/Yr
<i>World/Comparative Religion</i>		
RELI (see approved list)** (fulfills 3cr Global Studies)*	3	<input type="text"/>
<i>Ethics</i>		
PHIL 301 Ethics or RELI 330 Principles-Christian Morality	3	<input type="text"/>

Year 4: Imagining the Possible

		Credits Sem/Yr
<i>Core Integration Seminar</i>		
Dept. 432	3	<input type="text"/>

NOTE: some courses have pre-requisites, check the catalog carefully!

► BROADENING COURSES - see approved list**

		Credits Sem/Yr
Social & Behavioral Science	3	<input type="text"/>
Literature	3	<input type="text"/>
History	3	<input type="text"/>
Fine Arts & Design	3	<input type="text"/>

► REQUIRED COURSE DESIGNATIONS - see approved list**

		Credits Sem/Yr
*Writing Enriched	9 total	<input type="text"/>
Social Justice	3 total	<input type="text"/>
*Global Studies	6 total	<input type="text"/>

****for list of approved RELI, Broadening & Designated courses, see :**

<https://my.gonzaga.edu/academics/undergraduate-programs/general-degree-requirements-procedures/university-core>

APPLIED MATHEMATICS

34 Credits

LOWER DIVISION

18 Credits

Course	Course Title	Credits	Grade				
MATH 157	Calculus & Analytic Geometry I	4	<input type="text"/>				
MATH 258	Calculus & Analytic Geometry II	4	<input type="text"/>				
MATH 259	Calculus & Analytic Geometry III	4	<input type="text"/>				
MATH 260	Ordinary Differential Equations	3	<input type="text"/>				
CPSC 121	Computer Science I	3	<input type="text"/>				

UPPER DIVISION

13 Credits

MATH 301	Fundamentals of Mathematics	3	<input type="text"/>
MATH 339	Linear Algebra	3	<input type="text"/>
MATH 350	Elementary Numerical Analysis	3	<input type="text"/>
MATH 413	Real Analysis I	3	<input type="text"/>
MATH 496*	Comprehensive-Applied Math	1	<input type="text"/>

* Majors usually take Fall semester of their final year.

One of the following two courses:

3 Credits

MATH 321	Statistics for Experimentalists	3	<input type="text"/>
MATH 422	Mathematical Statistics	3	<input type="text"/>

If MATH 422 is chosen, then one MATH 400 level elective may be replaced by a MATH 300 level elective.

PHYSICS CONCENTRATION

31 Credits

Two of the following three courses:

6 Credits

MATH 417	Complex Variables	3	<input type="text"/>
MATH 454	Partial Differential Equations	3	<input type="text"/>
MATH 462	Nonlinear Systems & Chaos	3	<input type="text"/>

Mathematics 300-400 Level Elective:

3 Credits

MATH	<input type="text"/>
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Mathematics 400 Level Electives:

6 Credits

MATH	<input type="text"/>
MATH	<input type="text"/>

Minimum of 6 credits must be from the MATH electives list; cannot double-count with a required course.

MATH 328	Operations Research	3	<input type="text"/>
MATH 341	Modern Geometry	3	<input type="text"/>
MATH 351	Combinatorics & Graph Theory	3	<input type="text"/>
MATH 360-363	Selected Topics	3	<input type="text"/>
MATH 414	Real Analysis II	3	<input type="text"/>
MATH 417	Complex Variables	3	<input type="text"/>
MATH 421	Probability Theory	3	<input type="text"/>
MATH 437	Abstract Algebra I	3	<input type="text"/>
MATH 438	Abstract Algebra II	3	<input type="text"/>
MATH 450-453	Selected Topics	3	<input type="text"/>
MATH 454	Partial Differential Equations	3	<input type="text"/>
MATH 457	Number Theory & Cryptography	3	<input type="text"/>
MATH 459	Topology	3	<input type="text"/>
MATH 462	Nonlinear Systems & Chaos	3	<input type="text"/>
MATH 498A/498B	Thesis I/II	3	<input type="text"/>

10 Credits

PHYS 103/103L	Scientific Physics I/Lab	5	<input type="text"/>
PHYS 204/204L	Scientific Physics II/Lab	5	<input type="text"/>

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Physics 200, 300, 400 Level Electives:		6 Credits
PHYS		3
PHYS		3

- 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

Check for pre-requisites when selecting electives