

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

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

Year 2: Being & Becoming

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

Year 3: Caring & Doing

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

Year 4: Imagining the Possible

	Credits	Sem	Yr
<i>Core Integration Seminar</i>			
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: 61 CREDITS
Computer 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 231	Discrete Structures	3	
CPSC 121	Computer Science I	3	

UPPER DIVISION

13 Credits

MATH 301	Fundamentals of Mathematics	3	
MATH 339	Linear Algebra	3	
MATH 350	Elementary Numerical Analysis	3	
MATH 437	Abstract Algebra	3	
MATH 496*	Comprehensive-Applied Math	1	

* Majors usually take Fall semester of their final year.

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.

COMPUTER SCIENCE CONCENTRATION

27 Credits

One of the following three courses:

3 Credits

MATH 457	Number Theory & Cryptography	3	
MATH 454	Partial Differential Equations	3	
MATH 462	Nonlinear Systems & Chaos	3	

Mathematics 300-400 Level Electives:

6 Credits

MATH	3	
MATH	3	

Mathematics 400 Level Electives:

6 Credits

MATH	3	
MATH	3	

A minimum of 9 credits must be from the Math electives list; cannot double-count with another requirement.

- MATH 260 Ordinary Differential Equations
- MATH 328 Operations Research
- MATH 341 Modern Geometry
- MATH 351 Combinatorics & Graph Theory
- MATH 360-363 Selected Topics
- MATH 413 Real Analysis I
- MATH 414 Real Analysis II
- MATH 417 Complex Variables
- MATH 421 Probability Theory
- MATH 423 Stochastic Processes
- MATH 438 Abstract Algebra II
- MATH 450-453 Selected Topics
- MATH 454 Partial Differential Equations
- MATH 457 Number Theory & Cryptography
- MATH 459 Topology
- MATH 462 Nonlinear Systems & Chaos
- MATH 498A/498B Thesis I/II

CPSC 122	Computer Science II	3	
CPSC 223	Algorithms/Abstract Data Structures	3	

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CPSC 300-400 Level Electives:

	6 credits	
CPSC	3	
CPSC	3	

- CPSC 310-319 Special Topics
 - CPSC 321 Database Management Systems
 - CPSC 326 Organization of Programming Language
 - CPSC 351 Theory of Computation
 - CPSC 353 Applied Cryptography
 - CPSC 360 Introduction to Robotics
 - CPSC 410-414 Advanced Topics
 - CPSC 425 Computer Graphics
 - CPSC 427 Artificial Intelligence
 - CPSC 447 Computer Networks
 - CPSC 450 Design & Analysis-Computer Algorithms
 - CPSC 475 Speech & Natural Language Processing
- (CPSC 321, 351, 353, and 450 are the recommended elective choices)*

Check the catalog for pre-requisites when selecting electives.