Degree Worksheet for the College of Arts and Sciences: 2020-2021

B.S. APPLIED MATHEMATICS - Computer Science 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*

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 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.