

# Degree Worksheet for the College of Arts and Sciences: 2019-2020

## 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

	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 &amp; 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 &amp; 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>

### 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	<input type="text"/>
	MATH 258	Calculus & Analytic Geometry II	4	<input type="text"/>
	MATH 259	Calculus & Analytic Geometry III	4	<input type="text"/>
	MATH 231	Discrete Structures	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 437	Abstract Algebra	3	<input type="text"/>
	MATH 499	Comprehensive	1	<input type="text"/>

##### 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.

#### COMPUTER SCIENCE CONCENTRATION 27 Credits

##### One of the following three courses: 3 Credits

	MATH 457	Number Theory & Cryptography	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 Electives: 6 Credits

	MATH	3	<input type="text"/>
	MATH	3	<input type="text"/>

##### Mathematics 400 Level Electives: 6 Credits

	MATH	3	<input type="text"/>
	MATH	3	<input type="text"/>

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	<input type="text"/>
	CPSC 223	Algorithms/Abstract Data Structures	3	<input type="text"/>

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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)*

Remember to check for pre-requisites when selecting electives.