

Degree Worksheet for the College of Arts and Sciences: 2022-2023

B.S. APPLIED MATHEMATICS with 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
	3	1

UNIVERSITY CORE REQUIREMENTS:

► FUNDAMENTAL CORE COURSES

Year 1: Understanding & Creating

Writing	Credits	Sem/Yr
ENGL 101 Writing (fulfills 3 credits Writing Enriched)*	3	1
Reasoning		
PHIL 101 Reasoning	3	1
First Year Seminar		
Dept. 193	3	1
Communication & Speech		
COMM 100 Communication & Speech	3	1
Math		
MATH (must be above Math 100)	3	1
Scientific Inquiry (2cr + 1cr lab)		
BIOL or CHEM or PHYS 104/104L (taken year 1 or 2)	3	1

Year 2: Being & Becoming

Christianity & Catholic Traditions	Credits	Sem/Yr
RELI (see approved list)**	3	1
Philosophy of Human Nature		
PHIL 201 Philosophy of Human Nature	3	1

Year 3: Caring & Doing

World/Comparative Religion	Credits	Sem/Yr
RELI (see approved list)** (fulfills 3cr Global Studies)*	3	1
Ethics		
PHIL 301 Ethics or RELI 330 Principles-Christian Morality	3	1

Year 4: Imagining the Possible

Core Integration Seminar	Credits	Sem/Yr
Dept. 432	3	1

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

► BROADENING COURSES - see approved list**

Social & Behavioral Science	Credits	Sem/Yr
	3	1
Literature		
	3	1
History		
	3	1
Fine Arts & Design		
	3	1

► REQUIRED COURSE DESIGNATIONS - see approved list**

*Writing Enriched	Credits	Sem/Yr
	9 total	1
Social Justice		
	3 total	1
*Global Studies		
	6 total	1

****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: 64 CREDITS with Computer Science Concentration

APPLIED MATHEMATICS

31 Credits

LOWER DIVISION

15 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	
CPSC 121	Computer Science I	3	

UPPER DIVISION

7 Credits

MATH 301	Fundamentals of Mathematics	3	
MATH 350	Numerical Methods	3	
MATH 496	Comprehensive-Applied Math**	1	

(**Majors take fall semester of their final year)

Select 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.

Select one of the following two courses:

3 Credits

MATH 335	Applied Linear Algebra	3	
MATH 339	Linear Algebra	3	

Select one of the following three courses:

3 Credits

MATH 413	Real Analysis I	3	
MATH 437	Abstract Algebra I	3	
MATH 457	Number Theory and Cryptography	3	

COMPUTER SCIENCE CONCENTRATION

33 Credits

MATH 351	Credits	Sem/Yr
Combinatorics & Graph Theory	3	1

Select one of the following two courses:

3 Credits

CPSC 122	Computer Science II	3	
CPSC 222	Introduction to Data Science	3	

Select one of the following four courses:

3 Credits

CPSC 322	Data Science Algorithms	3	
CPSC 351	Theory of Computation	3	
CPSC 353	Applied Cryptography	3	
CPSC 450	Design & Analysis-Computer Algorithms	3	

Select three of the following six courses:

9 Credits

MATH 328	Operations Research	3	
MATH 421	Probability Theory	3	
MATH 423	Stochastic Processes	3	
MATH 425	Applied Statistical Models	3	
MATH 426	Experimental Design	3	
MATH 455	Chaos and Discrete Dynamical Systems	3	

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CPSC Elective Options:

- CPSC 223 Algorithm & Abstract Data Structures
- CPSC 224 Software Development
- CPSC 321 Database Management Systems
- *CPSC 322 Data Science Algorithms
- *CPSC 323 Machine Learning & Intelligent Systems
- *CPSC 324 Big Data Analytics
- CPSC 325 Data Science Project Lab
- CPSC 326 Organization of Programming Languages
- CPSC 331 UI/UX Design
- CPSC 332 Web Development
- CPSC 333 Mobile App Development
- CPSC 334 Linux and DevOps
- *CPSC 351 Theory of Computation
- *CPSC 353 Applied Cryptography
- CPSC 425 Computer Graphics
- CPSC 447 Computer Networks
- *CPSC 450 Design & Analysis-Computer Algorithms
- CPSC 475 Speech & Natural Language Processing

* (indicates the recommended elective choices)

Check the catalog for pre-requisites when selecting electives.

Select one CPSC 200-300-400 level elective:	3 Credits	
CPSC	3	

Select one CPSC 300-400 level elective:	3 Credits	
CPSC	3	

Select one 300-400 level Math elective:	3 Credits	
MATH	3	

Select two 400-level Math electives:	6 Credits	
MATH	3	
MATH	3	

Cannot double-count electives with another requirement.

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.

***For this Computer Science concentration only:**
*MATH 260 is optional, may be counted
as a Math 300-400 level elective*