# Degree Worksheet for the College of Arts and Sciences: 2021-2022
# B.S. APPLIED MATHEMATICS - Biochemistry 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

| | Credits | Sem/Yr |
|---|---|---|
| *Writing* | | |
| 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

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

#### Year 3: Caring & Doing

| | Credits | Sem/Yr |
|---|---|---|
| *World/Comparative Religion* | | |
| 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

| | Credits | Sem/Yr |
|---|---|---|
| *Core Integration Seminar* | | |
| 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:     67 CREDITS
## Biochemistry 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  260 | Ordinary Differential Equations | 3 | |
| CPSC  121 | Computer Science I | 3 | |

**UPPER DIVISION** — *13 Credits*

| | | Credits | Grade |
|---|---|---|---|
| MATH  301 | Fundamentals of Mathematics | 3 | |
| MATH  339 | Linear Algebra | 3 | |
| MATH  350 | Elementary Numerical Analysis | 3 | |
| MATH  413 | Real Analysis I | 3 | |
| MATH  496 | Comprehensive-Applied Math | 1 | |

**One of the following two courses:** — *3 Credits*

| | | Credits | Grade |
|---|---|---|---|
| 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.*

### BIOCHEMISTRY CONCENTRATION — 33 Credits

**One of the following three courses:** — *3 Credits*

| | | Credits | Grade |
|---|---|---|---|
| MATH 440 | Foundations of Applied Math | 3 | |
| MATH 454 | Partial Differential Equations | 3 | |
| MATH 462 | Nonlinear Systems & Chaos | 3 | |

**Applied Math Electives:** — *9 Credits*

| | | Credits | Grade |
|---|---|---|---|
| MATH | Math 300-400 level elective | 3 | |
| MATH | Math 400 level electives | 6 | |

*A minimum of 6 credits must be from Math electives list; cannot double-count with another requirement.*

MATH 328  Operations Research
MATH 341  Modern Geometry
MATH 351  Combinatorics & Graph Theory
MATH 360-363  Selected Topics
MATH 414  Real Analysis II
MATH 417  Complex Variables
MATH 421  Probability Theory
MATH 423  Stochastic Processes
MATH 437  Abstract Algebra I
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

*21 Credits*

| | | Credits | Grade |
|---|---|---|---|
| CHEM  101/101L | General Chemistry/Lab | 4 | |
| CHEM  230/230L | Organic Chemistry I/Lab | 5 | |
| CHEM  231/231L | Organic Chemistry II/Lab | 4 | |
| CHEM  245/245L | Biochemistry/Lab | 4 | |
| CHEM  399 | Advanced Topics | 2 | |
| CHEM  407 | Special Topics in Biochemistry | 2 | |

*Check the catalog for pre-requisites when selecting electives.*