

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

## B.S. APPLIED MATHEMATICS - Economics 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

|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |

### UNIVERSITY CORE REQUIREMENTS:

#### ► FUNDAMENTAL CORE COURSES

##### Year 1: Understanding & Creating

|   |   |  |
|---|---|--|
| 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

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

##### Year 3: Caring & Doing

|   |   |  |
|---|---|--|
| 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

|                          |   |  |
|--------------------------|---|--|
| Core Integration Seminar |   |  |
| Dept. 432                | 3 |  |

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

#### ► BROADENING COURSES - see approved list\*\*

|                             |   |  |
|-----------------------------|---|--|
| Social & Behavioral Science |   |  |
|                             | 3 |  |
| Literature                  |   |  |
|                             | 3 |  |
| History                     |   |  |
|                             | 3 |  |
| Fine Arts & Design          |   |  |
|                             | 3 |  |

#### ► REQUIRED COURSE DESIGNATIONS - see approved list\*\*

|                   |         |  |
|-------------------|---------|--|
| *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 Economics 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

**16 Credits**

|           |                               |   |  |
|-----------|-------------------------------|---|--|
| MATH 301  | Fundamentals of Mathematics   | 3 |  |
| MATH 339  | Linear Algebra                | 3 |  |
| MATH 350  | Elementary Numerical Analysis | 3 |  |
| MATH 413  | Real Analysis I               | 3 |  |
| MATH 422  | Mathematical Statistics       | 3 |  |
| MATH 496* | Comprehensive-Applied Math    | 1 |  |

\* Majors usually take Fall semester of their final year.

#### ECONOMICS CONCENTRATION

**27 Credits**

|          |                    |   |  |
|----------|--------------------|---|--|
| MATH 421 | Probability Theory | 3 |  |
|----------|--------------------|---|--|

#### One of the following two courses:

**3 Credits**

|          |                                |   |  |
|----------|--------------------------------|---|--|
| MATH 454 | Partial Differential Equations | 3 |  |
| MATH 462 | Nonlinear Systems & Chaos      | 3 |  |

#### Mathematics 300-400 Level Electives:

**6 Credits**

|      |  |   |  |
|------|--|---|--|
| MATH |  | 3 |  |
| MATH |  | 3 |  |

A minimum of 3 credits must be from the 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 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

**9 Credits**

|          |                                   |   |  |
|----------|-----------------------------------|---|--|
| ECON 201 | Microeconomics                    | 3 |  |
| ECON 202 | Macroeconomics                    | 3 |  |
| ECON 303 | Game Theory-Economic Applications | 3 |  |

#### One of the following two courses:

**3 credits**

|          |                             |   |  |
|----------|-----------------------------|---|--|
| ECON 301 | Intermediate Microeconomics | 3 |  |
| ECON 302 | Intermediate Macroeconomics | 3 |  |

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**Economics 300-400 Level Elective:**

**3 Credits**

ECON

3

|  |
|--|
|  |
|--|

ECON 301 Intermediate Microeconomics

ECON 311 Global Economic Issues

ECON 320 Economics of Sports

ECON 321 International Economics

ECON 322/SOSJ 320 Work, Wages, and Inequality

ECON 324 Economics of Environmental Protection

ECON 325 Public Finance

ECON 330 Antitrust Policy & Regulation

ECON 333 Health Economics

ECON 334 Behavioral Economics

ECON 351 Managerial Economics

ECON 352 Money & Banking

ECON 404 Economic Integrated European Community

ECON 451 Econometrics

*(ECON 321 and 451 are the recommended elective choices)*

Remember to check for pre-requisites when selecting  
electives.