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

B.S. APPLIED MATHEMATICS

with ECONOMICS and STATISTICS DOUBLE 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: 73-74 CREDITS

ECONOMICS & STATISTICS DOUBLE 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

10 Credits

MATH	301	Fundamentals of Mathematics	3	
MATH	350	Numerical Methods	3	
MATH	413	Real Analysis I	3	
MATH	496	Comprehensive - Applied Math	1	

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	

ECONOMICS CONCENTRATION — 39-40 Credits

3 credits

MATH	421	Probability Theory	3	

Select one of the following two courses: ***3 Credits***

MATH	425	Applied Statistical Models	3	
MATH	426	Experimental Design	3	

Select one of the following two courses: ***3 Credits***

MATH	440	Foundations of Applied Math	3	
MATH	454	Partial Differential Equations	3	

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	351	Managerial Economics	3	

** ECON 301 pre-requisite ECON 201, requires a minimum grade of B-*

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Select three Statistics electives:	***9 Credits***	
MATH	3	
MATH	3	
	3	

Cannot double-count with a course used elsewhere.

One ECON 300-400 level elective:	***3-4 credits***	
ECON	3	

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

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

Options for Statistics Electives:

Cannot double-count with a requirement used elsewhere
At least two courses must be MATH.

MATH 422 Mathematical Statistics
MATH 423 Stochastic Processes
MATH 426 Experimental Design
ECON 355 Regression Analysis
ECON 451 Econometrics
ECON 452 Time Series Analysis
CPSC 322 Data Science Algorithms
CPSC 323 Machine Learning and Intelligent Systems
CPSC 324 Big Data Analytics
PHYS 450 Statistical Physics

*Or any course with significant probability or statistics content with the **prior** approval of the Math Department Chair.*

All of these courses have pre-requisites, and may require courses outside of the concentration to be taken.

Check the catalog for pre-requisites when selecting electives.

Options for ECON 300-400 Level Elective: *3-4 Credits*

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 352/352L Money & Banking + Lab
ECON 355 Regression Analysis
*ECON 451 Econometrics
*ECON 452 Time Series Analysis

*(*recommended elective choices)*

MATH Electives:

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.

Check for pre-requisites when selecting electives.