

**Degree Worksheet for the College of Arts and Sciences: 2023-2024**  
**B.S. APPLIED MATHEMATICS**  
**with ECONOMICS and STATISTICS DOUBLE 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	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**

	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	

	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.  
 TWO courses must be MATH*

**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 323 Statistical Physics
- PSYC 450 Advanced Statistics in Psychology

*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.**

**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 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.**