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

B.S. BIOLOGY with Research 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. BIOLOGY-Research Concentration: 75-77 CREDITS

LOWER DIVISION — 46 Credits

Course	Course Title	Credits	Grade
BIOL	105 Info Flow in Biological Systems & Lab**	4	
BIOL	106 Energy Flow in Biological Systems	3	
BIOL	205 & 205L Physiology & Biodiversity & Lab	4	
BIOL	206 & 206L Ecology & Lab	4	
BIOL	207 & 207L Genetics & Lab	4	
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	

Choose one of the following sets of courses and labs:

PHYS	101 & 101L General Physics I **&** Lab	5	
PHYS	103 & 103L Scientific Physics I **&** Lab	5	

Choose one of the following sets of courses and labs:

PHYS	102 & 102L General Physics II **&** Lab	5	
PHYS	204 & 204L Scientific Physics II **&** Lab	5	

UPPER DIVISION — 18 Credits

BIOL	399 Advanced Topics	2	
BIOL	495 Senior Evaluation	0	
BIOL	499 Senior Colloquium	1	

BIOL Upper Division Electives: *15 Credits*

(must be approved by an advisor in Biology)*

Course	Course Title	Credits	Grade
BIOL			
BIOL			
BIOL			
BIOL			
BIOL			

RESEARCH CONCENTRATION

Complete <u>additional</u> requirements #1-#7

see Research Concentration details on Page 2

#1. - #4. details on Page 2. — 4

#5. BIOL 484 Research Seminar — 1

#6. Select one of the following two courses:

MATH	148 Survey of Calculus	3	
MATH	157 Calculus & Analytic Geometry I	4	

#7. Complete a statistics or biological mathematics course:

Stastics: MATH 121 or MATH 321 or Biological Data Analysis BIOL 305 — 3-4

*Students must earn a C- grade or better in BIOL 105/105L & BIOL 106 in order to take BIOL 205, 206, or 207. Students must also get a C- grade or better in BIOL 205/205L, 206/206L, 207/207L & BIOL 399 in order to take BIOL 499.

For upper division biology electives, a minimum of 10 credits (B.S.), 6 credits (B.A.), or 4 credits (Minor) must be biology courses taken from Gonzaga faculty. Students participating in School for Field Studies programs or other study abroad programs should make note.

***BIOL 105/105L meets the Scientific Inquiry requirement of the University Core for Biology Majors & Minors.**

Credits from BIOL 497 Biology Internship, do not satisfy any requirements for the Biology Major or Minor.

<u>All</u> courses should be chosen in consultation with a Biology faculty advisor.

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

B.S. BIOLOGY with Research Concentration

The Research Concentration is a challenging area of study within the Biology major. Its goals are to make research experiences available to more students, to show students the value of science education outreach through experiential learning, and to provide students with a more solid foundation in biological mathematics and science communication. It consists of a number of courses and experiences designed to prepare students to pursue research in some venue (graduate school, industry, government, medical school, or science education) after graduation. Students can enter the program at any time, although we anticipate most students will enter the program as sophomores and juniors.

To complete the Research Concentration, the following requirements are <u>in addition</u> to the requirements for the B.S. degree in Biology:

1. Participate in a significant research experience. This means working on an independent research project for the equivalent of <u>4 credits</u>. Most students can fulfill this requirement in one summer of full-time research or four academic semesters of research while enrolled in other classes. Enrolling in the Research Concentration does not guarantee a research experience. It is the student's responsibility to secure a research position. This requirement can be fulfilled in the lab of a GU faculty member, or with <u>prior</u> permission, at a different institution.

2. Present the results from the independent research (in oral or poster format) to the scientific community at a venue outside of the Gonzaga campus.

3. Write up the research results under advisement with student's research mentor. Final papers will be turned in to the Research Coordinator the last month of the final semester the student is enrolled at Gonzaga. If student did research off campus, see the Research Coordinator to arrange a local writing mentor.

4. Participate in science education outreach for 16 hours one semester (BIOL 295/CHEM 295).

5. Take BIOL 484 Research Seminar (1 credit) and attend a minimum of 12 biology-related seminars (including those in BIOL 484), and write and submit a seminar reflection for each seminar.

6. Take a calculus course, Survey of Calculus (MATH 148, 3 credits) or Calculus & Analytic Geometry I (MATH 157, 4 credits).

7. Complete a statistics course (MATH 121 or MATH 321, 3 credits) or a biological mathematics course, Biological Data Analysis (BIOL 305, 4 credits).