

College of Arts and Sciences 2024-2025 Degree Worksheet

B.S. BIOLOGY with Research 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

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UNIVERSITY CORE REQUIREMENTS:

► FUNDAMENTAL CORE COURSES

Year 1: Understanding & Creating

		Credits Sem/Yr
Writing ENGL 101 Writing (fulfills 3 credits Writing Enriched)*	3	<input type="text"/>
Reasoning PHIL 101 Reasoning	3	<input type="text"/>
First Year Seminar Dept. 193	3	<input type="text"/>
Communication & Speech COMM 100 Communication & Speech	3	<input type="text"/>
Math MATH (must be above Math 100)	3	<input type="text"/>
Scientific Inquiry (2cr + 1cr lab) ** BIOL or CHEM or PHYS 104/104L (taken year 1 or 2)	3	<input type="text"/>

Year 2: Being & Becoming

		Credits Sem/Yr
Christianity & Catholic Traditions RELI (see approved list)**	3	<input type="text"/>
Philosophy of Human Nature PHIL 201 Philosophy of Human Nature	3	<input type="text"/>

Year 3: Caring & Doing

		Credits Sem/Yr
World/Comparative Religion RELI (see approved list)** (fulfills 3cr Global Studies)*	3	<input type="text"/>
Ethics PHIL 301 Ethics or RELI 330 Principles-Christian Morality	3	<input type="text"/>

Year 4: Imagining the Possible

		Credits Sem/Yr
Core Integration Seminar Dept. 432	3	<input type="text"/>

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

► BROADENING COURSES - see approved list**

		Credits Sem/Yr
Social & Behavioral Science	3	<input type="text"/>
Literature	3	<input type="text"/>
History	3	<input type="text"/>
Fine Arts & Design	3	<input type="text"/>

► REQUIRED COURSE DESIGNATIONS - see approved list**

		Credits Sem/Yr
*Writing Enriched	9 total	<input type="text"/>
Social Justice	3 total	<input type="text"/>
*Global Studies	6 total	<input type="text"/>

****for list of approved RELI, Broadening & Designated courses, see :** <https://my.gonzaga.edu/academics/undergraduate-programs/general-degree-requirements-procedures/university-core>

****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.

All courses should be chosen in consultation with a Biology faculty advisor.

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LOWER DIVISION

42 Credits

	Course Title		Credits	Grade
BIOL	105/105L Info Flow in Biological Systems + Lab**	4	<input type="text"/>	<input type="text"/>
BIOL	106 Energy Flow in Biological Systems	3	<input type="text"/>	<input type="text"/>
BIOL	111 Biology Pathways	1	<input type="text"/>	<input type="text"/>
BIOL	205/205L Physiology & Biodiversity + Lab	4	<input type="text"/>	<input type="text"/>
BIOL	206/206L Ecology + Lab	4	<input type="text"/>	<input type="text"/>
BIOL	207/207L Genetics + Lab	4	<input type="text"/>	<input type="text"/>
CHEM	101/101L General Chemistry + Lab	4	<input type="text"/>	<input type="text"/>
CHEM	230/230L Organic Chemistry I + Lab	4	<input type="text"/>	<input type="text"/>
CHEM	231/231L Organic Chemistry II + Lab	4	<input type="text"/>	<input type="text"/>

One of the following two-course + lab combinations:

PHYS 111/111L General Physics I + Lab	5	<input type="text"/>
PHYS 121/121L Physics I + Lab	5	<input type="text"/>

One of the following two-course + lab combinations:

PHYS 112/112L General Physics II + Lab	5	<input type="text"/>
PHYS 122/122L Physics II + Lab	5	<input type="text"/>

UPPER DIVISION + Research

29-31 Credits

BIOL	399 Advanced Topics	2	<input type="text"/>
BIOL	495 Senior Evaluation	0	<input type="text"/>
BIOL	499 Senior Colloquium	1	<input type="text"/>

BIOL Upper Division Electives:

15 Credits

(**must** be approved by an advisor in Biology)*

	Course Title		Credits	Grade
BIOL			<input type="text"/>	<input type="text"/>
BIOL			<input type="text"/>	<input type="text"/>
BIOL			<input type="text"/>	<input type="text"/>
BIOL			<input type="text"/>	<input type="text"/>

RESEARCH CONCENTRATION

Complete additional requirements 1 - 7, details Page 2.

1. - 4. see details on Page 2.

1.	BIOL 498 Research	4	<input type="text"/>
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5.	BIOL 484 Research Seminar	1	<input type="text"/>
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Also attend 12 biology-related seminars + submit reflection on each

6. Select one of the following two calculus courses:

MATH	148 Survey of Calculus	3	<input type="text"/>
MATH	157 Calculus & Analytic Geometry I	4	<input type="text"/>

7. Complete one of the following:

MATH	121 Introductory Statistics	3	<input type="text"/>
MATH	321 Statistics for Experimentalists	3	<input type="text"/>
BIOL	305 Biological Data Analysis	4	<input type="text"/>

*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 study abroad programs should make note.

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The Research Concentration is designed 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 or juniors.

To complete the Research Concentration, the following requirements are added 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 **4 credits**. 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 by working with a GU faculty member, or with prior permission, with a faculty member at a different institution.
2. Present the results from the independent research (in oral or poster format) to the scientific community at an event organized for that purpose.
3. Write up the research results under advisement with the your research mentor. Final papers will be turned in to the Research Coordinator the last month of the final semester you are enrolled at Gonzaga. If you 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 - 0 credits).
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 college calculus course (MATH 148 Survey of Calculus (**3cr**) or MATH 157 Calculus and Analytic Geometry I (**4cr**)).
7. Complete a statistics course (MATH 121 or MATH 321)(**3 credits**) or a biological mathematics course, BIOL 305 Biological Data Analysis (**4 credits**).