

ADVISING HANDBOOK

FOR BIOLOGY AND BIOLOGY
INTERDISCIPLINARY MAJORS,
AND MINORS IN THE DEPARTMENT



**MORE THAN READY.
LOYOLA READY.**



LOYOLA
UNIVERSITY MARYLAND

SEPT 2020 EDITION

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This manual contains the best advice of the biology faculty and is accurate to the best of our knowledge. However, it is not an official document and the information in this book is not binding. See the Undergraduate Catalogue for official policies regarding your major and graduation requirements.

General Advising Advice

Plan Ahead!

- This is especially true if you want to study abroad

Advising Worksheets

- The biology department makes its own advising worksheets for the biology, biology/psychology, and biology/interdisciplinary majors. You can find these at the end of this manual.
- Fill out the worksheet for your major. Keep this in a safe place with this advising manual. Update the advising worksheets each semester and bring to every advising meeting.

Responsibility

- Your college career is exactly that - yours.
- We are here to *advise* you
- **IT IS YOUR RESPONSIBILITY** to look at the undergraduate catalogue, **READ IT** and understand graduation requirements **PRIOR** to advising sessions.

Messina Advising

- Is great! But, if you are a science major, you may want to also get advice from a science professor. We are here for you! If you have not yet been assigned a major (biology) advisor, feel free to reach out to the Director of Curriculum and Advising, Dr. Scheifele at lzscheifele@loyola.edu, and she would be happy to meet with you.

Biology

Contact information

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Faculty

Chair: Rebecca S. Brogan

Director of Advising and Curriculum: Lisa Z. Scheifele

Professors: Henry C. Butcher IV (emeritus); Charles R. Graham, Jr. (emeritus); Donald A. Keefer (emeritus); David B. Rivers

Associate Professors: Rebecca S. Brogan; Elissa Miller Derrickson; Kim C. Derrickson; Theresa M. Geiman; Armina A. Kazi; Bernadette M. Roche; Lisa Z. Scheifele; Andrew J. Schoeffield; Christopher Thompson; Maren E. Veatch-Blohm

Endowed Professor: Michael A. Tangrea

Assistant Professor: Derek M. Kendig

Lecturers: Reagan Lake; Lauren Spearman; Kolaleh Hassan

About the Department

The Biology Department is an active, student-centered department that focuses on excellence in teaching and undergraduate research. The Major in Biology is designed to provide the depth, scope, and skills necessary for admission to graduate and professional schools or for the job market. The biology degree requirements include a minimum of 10 courses in the biology department, as well as courses from chemistry, physics, and mathematics and statistics.

The three introductory biology courses required for the major provide a foundation to each of the three major areas of biology: cell and molecular biology, structure and function of organisms, and ecology and evolutionary biology. The upper-level curriculum allows students flexibility to explore the sub-disciplines of biology in greater depth. In the upper-level curriculum, courses generally consist of a classroom component with associated laboratory and/or seminar experiences.

The discipline of biology is experiential in nature, which means that students are active participants in their own education. Students are required to take one advanced course in each of the three major areas of biology. These advanced courses include laboratory components in which students learn how to think and write like scientists, often while designing and executing an experiment. They also learn how to work cooperatively as contributing members of a team and develop a greater sense of academic community.

The general biology curriculum is flexible in the major's requirements by allowing students to select four upper-division courses from a wide array of offerings. This flexibility allows students to individualize their curriculum to suit their academic and career goals. Loyola's biology curriculum helps to prepare students as academicians, for their professional career after Loyola, and as lifelong learners.

The Biology Department emphasizes the following objectives:

- The fostering of supportive student-faculty relationships. Students engage in a caring and open student-faculty relationship in which they view faculty as both models and mentors. Students understand the inevitability of making mistakes during the process of growing from student to biologist.
- The preparation of students for life after Loyola as members of the job market or for studies in graduate or professional schools. Through a flexible curriculum, students make appropriate connections between their coursework, the world around them, and their personal strengths and convictions.
- Through its nurturing mentorship and flexible curriculum, the department attempts to produce broadly-trained biologists ready for a wide range of careers by emphasizing the learning aims.

Learning Aims

The Biology Department has developed the following learning aims for the biology major:

Students will master the current factual content of different sub-disciplines within biology, such as molecular/cellular, organismal, and population biology.

Students will demonstrate the ability to organize, apply, and synthesize the large quantities of new scientific information into a meaningful framework.

Students will show a clear understanding of the scientific process and effectively engage in conducting research based on their ability to read, understand, and critically evaluate primary literature articles; ask scientific questions; design experiments testing hypotheses; and analyze, display, and interpret data using statistical and graphical software packages.

Students will demonstrate proficiency in communicating effectively in a variety of formats, including verbal, written, and symbolic (mathematical) channels. They will exhibit the ability to write papers in appropriate scientific formats; discuss scientific experiments in a group; present

results verbally and in poster formats; and use computer and graphical models to explain biological phenomenon.

Students will be able to articulate the ethical issues surrounding the practice and direction of biological research.

Students will become active and engaged citizens who take active leadership and service roles in the larger community, particularly when issues arise related to their biological training.

The Undergraduate Course Catalogue

The undergraduate course catalogue contains the official policies of the university and **the official requirements for obtaining your degree**. The catalogue can be found at:

<https://catalogue.loyola.edu/index.php?catoid=20>

Your Degree Audit (available through Inside Loyola) is **the most accurate recording of whether you have completed your requirements** to graduate. Check it each semester and resolve any issues promptly!

Note that the requirements for **you** to graduate are the requirements that were in place when you entered Loyola. So, if you started at Loyola in August 2017, then you need to be sure that you are looking at the 2017-2018 catalogue. There is a pull-down menu at the top of the catalogue website that allows you to select a particular catalogue year. **If you are a transfer student**, check your degree audit or with the Academic Advising and Support Center for your catalogue year.

We encourage you to talk with other students and those in other class years about your courses and to listen to their advice, but please be aware that their requirements may be different than yours if you are in a different class year!

Graduation Requirements

Include the completion (among other requirements, see course catalogue) of 40 courses of 3-credits or more and 120 credits. Note that **1 and 2-credit labs do not count towards the 40 courses required for graduation** (yes, as a science major you will be doing more in-class work than non-science majors!)

Programs in the Biology Department

Undergraduate majors

- Biology, BS
- Forensic Studies, BA

Interdisciplinary undergraduate majors

- Interdisciplinary Major in Biology/Other
- Interdisciplinary Major in Biology/Psychology

Undergraduate minors

- Biology Minor
- Environmental and Sustainability Studies Minor
- Forensic Studies Minor
- Natural Sciences Minor

Graduate programs

- Master of Science in Forensic Pattern Analysis

Biology courses

- BL 100 - Insects in Our World
- BL 101 - Introduction to Forensic Science with Lab
- BL 102 - Medicinal Plants
- BL 103 - Microbes and Man: The Good, the Bad, and the Ugly
- BL 104 - Twisted Planet: Global Issues in Biology
- BL 105 - Introduction to Anatomy and Physiology
- BL 106 - Science of Life
- BL 107 - Life on the Edge
- BL 109 - Modern Marvels of Biotechnology
- BL 110 - Introduction to Forensic Science
- BL 111 - Environmental Biology
- BL 113 - Human Biology
- BL 114 - Biology: A Human Approach
- BL 115 - Biology, Evolution, and Human Nature
- BL 116 - The Chesapeake Bay Environment
- BL 118 - Introduction to Cellular and Molecular Biology
- BL 119 - Introduction to Cellular and Molecular Biology Lab
- BL 120 - Food: Environmental and Human Impacts
- BL 121 - Organismal Biology
- BL 126 - Organismal Biology Lab
- BL 201 - Ecology, Evolution, and Biodiversity
- BL 202 - Process of Science and Ecology, Evolution, and Biodiversity Lab
- BL 206 - Human Anatomy and Physiology I
- BL 207 - Human Anatomy and Physiology Lab I
- BL 208 - Human Anatomy and Physiology II
- BL 209 - Human Anatomy and Physiology Lab II
- BL 210 - Introduction to Human Nutrition
- BL 220 - Natural History of Maryland Species
- BL 230 - Avian Biology with Lab
- BL 241 - Invertebrate Zoology with Lab
- BL 250 - General Entomology with Lab
- BL 255 - Introduction to Biomedical Research
- BL 270 - Ecology with Lab
- BL 276 - Human Health and the Environment
- BL 280 - General Genetics with Lab
- BL 281 - General Genetics
- BL 301 - Vertebrate Anatomy with Lab
- BL 302 - Ecology of the Burren
- BL 305 - Plant Ecology with Lab
- BL 310 - Botany with Lab
- BL 311 - Research Methods: Plant Science
- BL 316 - Comparative Physiology with Lab
- BL 317 - Comparative Physiology
- BL 321 - Synthetic Biology
- BL 322 - Synthetic Biology with Lab

BL 332 - Microbiology
BL 334 - Microbiology Lab
BL 341 - Molecular Genetics with Lab
BL 343 - Molecular Genetics with Seminar
BL 346 - Plant-Animal Interactions
BL 347 - Plant-Animal Interactions Seminar
BL 350 - Biology of Mammals with Lab
BL 351 - Forensic Entomology with Lab
BL 355 - Forensic Biology with Lab
BL 361 - Plant Physiology with Lab
BL 370 - Pharmacology
BL 390 - Conservation Biology
BL 392 - Conservation Biology Seminar
BL 393 - Conservation Biology Lab
BL 399 - Biology Internship
BL 401 - Endocrinology
BL 403 - Neurobiology with Lab
BL 404 - Laboratory Experience in Neurobiology
BL 405 - Neurobiology
BL 406 - Endocrinology Lab
BL 408 - Endocrinology with Lab
BL 410 - Developmental Biology with Lab
BL 411 - Developmental Biology
BL 424 - Cancer Biology with Seminar/Lab
BL 426 - Cell Biology
BL 427 - Cell Biology Lab
BL 428 - Bioterrorism
BL 431 - Biochemistry I
BL 432 - Biochemistry II
BL 433 - Biochemistry Lab I
BL 434 - Biochemistry Lab II
BL 435 - Evolution with Seminar
BL 436 - Evolution
BL 438 - Exploring the Human Genome
BL 440 - Special Topics in Biology
BL 444 - Stem Cell Biology with Lab
BL 452 - General and Human Physiology with Lab
BL 454 - Animal Behavior
BL 455 - Animal Behavior Lab
BL 467 - Seminar: Career Choices
BL 470 - Seminar: Special Topics in Organismal Biology
BL 471 - Seminar: Special Topics in Ecology, Evolution, and Diversity
BL 472 - Seminar: Special Topics in Cellular and Molecular Biology
BL 473 - Special Topics in Forensic Biology
BL 481 - Biology Research I
BL 482 - Biology Research II

BL 483 - Biology Research III
BL 491 - Honors Biology Research I
BL 492 - Honors Biology Research II
BL 496 - Environmental Studies Experience
BL 498 - Forensic Studies Experience

Forensic Studies courses

FO 230 - Introduction to Criminalistics
FO 300 - Crime Scene Investigations
FO 310 - Introduction to Fingerprints
FO 330 - Biological and Forensic Science Quality Assurance
FO 400 - Comparative Forensic Sciences: Latent Prints and Firearms
FO 410 - Advanced Topics and Techniques in Fingerprints

The Biology Major

Requirements

To complete the Biology major, students must complete:

- The **three** foundation courses and labs (BL 118 and 119- Introduction to Cellular and Molecular Biology and Lab, BL 121 and 126 - Organismal Biology and Lab, and BL 201 and 202- Ecology, Evolution, and Biodiversity and Lab)
- **Seven** upper-level biology electives (see Elective Restrictions below)
 - At least one must be from Category A, one from Category B, and one from Category C
 - At least four must be taken at the 300-level or higher (BL 300-499).
- **Four** chemistry courses and labs (CH 101 and 105- General Chemistry I and Lab, CH 102 and 106- General Chemistry II and Lab, CH 301 and 307- Organic Chemistry I and Lab, CH 302 and 308- Organic Chemistry II and Lab)
- **One** math/stats course (MA 251 - Calculus I or MA 252 - Calculus II or ST 210 - Introduction to Statistics or ST 265 – Biostatistics)
- **Two** physics courses and labs (PH 101 - Introductory Physics I with Lab and PH 102 - Introductory Physics II with Lab)

Note that these courses fulfill the natural sciences Core requirement.

General Policies

If a student decides to withdraw from either the lecture or laboratory component of corequisite courses, then the student must also withdraw from the corresponding lecture or laboratory course. Likewise, if a student fails either the lecture or laboratory component of corequisite courses, both courses must be retaken with passing grades to receive credit within the biology major. A student will not receive credit for completing the lecture or laboratory only, either at Loyola or another institution, unless the department chair gives prior written permission.

The Foundation Courses

Biology majors must successfully complete BL 118/BL 119, BL 121/BL 126, and BL 201/BL 202 before starting their junior year. In general, BL118/119 are taken in the fall of the freshman year, BL121/126 is taken in the spring of the freshman year, and BL201/202 are taken in either the fall **or** spring of sophomore year.

The Math Requirement

The math requirement (MA 251 or MA 252 or ST 210 or ST 265) may be taken anytime. Most students choose the sophomore or junior years. Students who plan to take General rather than Introductory Physics should arrange to take Calculus I and II during their freshman or sophomore years.

Biology Electives and Restrictions

1. Only courses numbered above BL202 count as electives in the biology major.
2. To count in the biology major or an associated interdisciplinary major with biology, Human Anatomy and Physiology I (BL 206/BL 207) and Human Anatomy and Physiology II (BL 208/BL 209) must be taken at Loyola or a consortium school.
3. Honors students who complete the functional anatomy course while studying abroad in Glasgow, Scotland may not take Introduction to Anatomy and Physiology (BL 105), Human Anatomy and Physiology I (BL 206/BL 207), Human Anatomy and Physiology II (BL 208/BL 209), or Vertebrate Morphology (BL 260) at Loyola.
4. Students take seven upper-level biology electives. Of the seven biology electives, students must take at least one course from each of three categories described below, and these three courses must be taken within the Biology Department at Loyola.
5. At least four of the seven upper-level biology electives must be taken at the 300-level or higher (BL 300-499).
6. Students may take two experiential learning courses (i.e. research or internships) that count towards graduation. One 3-credit research or internship course may count toward the seven biology electives. One additional research or internship biology course may be taken as a free elective. Students should consult their academic advisor before selecting their electives.

Category A: Cellular/Molecular Biology Courses

BL 255 - Introduction to Biomedical Research
BL 322 - Synthetic Biology with Lab
BL 341 - Molecular Genetics with Lab
BL 343 - Molecular Genetics with Seminar
BL 401 - Endocrinology
BL 403 - Neurobiology with Lab
BL 404 - Laboratory Experience in Neurobiology
BL 405 - Neurobiology
BL 408 - Endocrinology with Lab
BL 410 - Developmental Biology with Lab
BL 411 - Developmental Biology
BL 424 - Cancer Biology with Seminar/Lab
BL 426 - Cell Biology
BL 428 - Bioterrorism
BL 431 - Biochemistry I

BL 432 - Biochemistry II
BL 438 - Exploring the Human Genome
BL 444 - Stem Cell Biology with Lab

Category B: Organismal Biology courses

BL 206 - Human Anatomy and Physiology I
BL 208 - Human Anatomy and Physiology II
BL 210 - Introduction to Human Nutrition
BL 280 - General Genetics with Lab
BL 281 - General Genetics
BL 301 - Vertebrate Anatomy with Lab
BL 310 - Botany with Lab
BL 316 - Comparative Physiology with Lab
BL 317 - Comparative Physiology
BL 332 - Microbiology
BL 361 - Plant Physiology with Lab
BL 370 - Pharmacology
BL 452 - General and Human Physiology with Lab

Category C: Population Biology courses

BL 220 - Natural History of Maryland Species
BL 230 - Avian Biology with Lab
BL 241 - Invertebrate Zoology with Lab
BL 250 - General Entomology with Lab
BL 270 - Ecology with Lab
BL 305 - Plant Ecology with Lab
BL 311 - Research Methods: Plant Science
BL 346 - Plant-Animal Interactions
BL 350 - Biology of Mammals with Lab
BL 351 - Forensic Entomology with Lab
BL 355 - Forensic Biology with Lab
BL 390 - Conservation Biology
BL 435 - Evolution with Seminar
BL 436 - Evolution
BL 454 - Animal Behavior

Biology/Psychology Major

Requirements

To complete the Biology/psychology major, students must complete:

- The **three** biology foundation courses and labs (BL 118 and 119- Introduction to Cellular and Molecular Biology and Lab, BL 121 and 126 - Organismal Biology and Lab, and BL 201 and 202- Ecology, Evolution, and Biodiversity and Lab)
- **Three** psychology courses and a professional development course (PY 101 - Introductory Psychology, PY 291 - Research Methods I (with Lab), PY 292 - Research Methods II (with Lab), PY 200 - Professional Development in Psychology (1 credit))
- **One** statistics course (ST 210 - Introduction to Statistics or ST 265 – Biostatistics)
- **Five** upper-level biology electives
 - One at the 200-level or higher
 - One at the 300-level or higher
 - Three from: BL208/209 Anatomy and Physiology II (note that enrollment for this course is restricted to those who **need** it for their careers), BL 316 - Comparative Physiology with Lab, BL 317 - Comparative Physiology, BL 341 - Molecular Genetics with Lab, BL 401 – Endocrinology or BL 408 - Endocrinology with Lab, BL 403 - Neurobiology with Lab or BL 405 – Neurobiology, BL 410 - Developmental Biology with Lab or BL 411 - Developmental Biology, BL 426/427 - Cell Biology and Lab, BL 435 - Evolution with Seminar or BL 436 – Evolution, BL 444 - Stem Cell Biology with Lab, BL 452 - General and Human Physiology with Lab, BL 454/455 - Animal Behavior and Lab)
- **Five** upper-level psychology courses (see Psychology Elective Restrictions below)
 - One from PY 241 - Child Development, PY 242 - Adolescent Development, PY 243 - Adult Development, or PY 244 - Life Span Development
 - One PY Advanced Topics (Group I) course.
 - Three at the 200-level or higher
- **Two** courses from CH, CS, MA/ST, or PH. These courses must be those typically taken by biology majors. Options include:
 - CH 101/105- General Chemistry I and Lab
 - CH 102/106- General Chemistry II and Lab
 - CS151- Computer Science through Programming
 - CS212- Object-Oriented Data Structure
 - MA 251 - Calculus I
 - MA 252 - Calculus II
 - ST 300+
 - PH 101 - Introductory Physics I with Lab
 - PH 102 - Introductory Physics II with Lab

Note that this major fulfills both the natural sciences and the social sciences Core requirements.

General Policies

If a student decides to withdraw from either the lecture or laboratory component of corequisite courses, then the student must also withdraw from the corresponding lecture or laboratory course. Likewise, if a student fails either the lecture or laboratory component of corequisite courses, both courses must be retaken with passing grades to receive credit within the biology major. A student will not receive credit for completing the lecture or laboratory only, either at Loyola or another institution, unless the department chair gives prior written permission.

Biology Foundation Courses

Biology majors must successfully complete BL 118/BL 119, BL 121/BL 126, and BL 201/BL 202 before starting their junior year. In general, BL118/119 are taken in the fall of the freshman year, BL121/126 is taken in the spring of the freshman year, and BL201/202 are taken in either the fall **or** spring of sophomore year.

Biology Electives and Restrictions

1. To count in the biology major or an associated interdisciplinary major with biology, Human Anatomy and Physiology I (BL 206/BL 207) and Human Anatomy and Physiology II (BL 208/BL 209) must be taken at Loyola or a consortium school.
2. Honors students who complete the functional anatomy course while studying abroad in Glasgow, Scotland may not take Introduction to Anatomy and Physiology (BL 105), Human Anatomy and Physiology I (BL 206/BL 207), Human Anatomy and Physiology II (BL 208/BL 209), or Vertebrate Morphology (BL 260) at Loyola.
3. For the biology/psychology major BL206/207 counts as a free elective and BL208/209 counts as a Group 7 Biology course. If you don't pass both semesters, BL206/207 would count as a free elective and you would not fulfill any Group 7 requirement. See the section of this manual on Anatomy and Physiology for more information.
4. Students may take two experiential learning courses (i.e. research or internships) that count towards graduation. One 3-credit research or internship course may count toward the seven biology electives. One additional research or internship biology course may be taken as a free elective. Students should consult their academic advisor before selecting their electives.

Advising

Bio/psych majors will be assigned one advisor from the biology department and one from the psychology department. You should meet with at least one of your advisors every semester. You should meet with both your biology advisor and your psychology advisor at least once per year.

Biology/Other Interdisciplinary Majors

Interdisciplinary majors allow students to combine interests in two different disciplines. This enables students to individualize their curriculum and helps to prepare them for our interdisciplinary world. Disciplines recently combined with biology in this way include communication, economics, history, mathematics, philosophy, sociology, Spanish, theology, and writing. It is possible, however, to combine biology with many other disciplines.

Requirements

The general biology requirements for an interdisciplinary major (unless specified by targeted programs) are as follows:

- The **three** foundation courses and labs (BL 118 and 119- Introduction to Cellular and Molecular Biology and Lab, BL 121 and 126 - Organismal Biology and Lab, and BL 201 and 202- Ecology, Evolution, and Biodiversity and Lab)
- **Three** upper-level biology electives at the 200-level or higher
- **Two** upper-level biology electives at the 300-level or higher
- **Two** courses from CH, CS, MA/ST, or PH. These courses must be those typically taken by biology majors. Options include:
 - CH 101/105- General Chemistry I and Lab
 - CH 102/106- General Chemistry II and Lab
 - CS151- Computer Science through Programming
 - CS212- Object-Oriented Data Structure
 - MA 251 - Calculus I
 - MA 252 - Calculus II
 - ST 300+
 - PH 101 - Introductory Physics I with Lab
 - PH 102 - Introductory Physics II with Lab

Switching majors

It is certainly possible to switch between biology, bio/psychology, biochemistry, and bio/other majors if you do it early in your Loyola career. On your Webadvisor degree audit, you can see how what you have already taken lines up with the requirements of the major that you are considering by selecting the major that you are considering under “What if I changed my program of study?” (see picture below; note that for biology/other the degree audit needs to be built from scratch, so you can’t select this option.)

To view degree audit:

Click the box to the left of your active program in the *Choose One* column

Click *Submit*


Once you have finished viewing your degree audit, click *Menu* for other options or
Click *Log Out* to complete the process.

* = Required

Choose One	Active Programs
<input type="radio"/>	BS.BL/PY BS, Biology/Psychology

What if I changed my program of study?

What work do you want to include?*



Unsure of whether you want to switch? If you are considering switching from biology to bio/psych, for example, try out some psych courses and see if you like them! In the meantime, keep taking science courses and try to select ones that will count for both your current major and the one that you are considering.

Selecting Courses

Some classes fill up quickly! You may not be able to get specific courses in the semester that you prefer, but you will be able to take them before you graduate. We know that it's frustrating! Your ideal may not be possible; be reasonable and distinguish between what you *want* and what you *need* for graduation and/or your career.

While you are only required to complete one math/stats course and one language course (the 104 level), you need to achieve a certain level of proficiency (completion of the 104 level language and completion of MA251 or ST201 or ST265. You want to check the results of your placement testing (<https://www.loyola.edu/departments/academic-advising/students/first-year/placement-testing>). If you do not have placement into the 104 level of language (or if you are choosing to start a new language at the 101 level) or into one of the math courses listed above, you will need to take additional courses to get you to that level. **You should do that early in your Loyola career** since you may have to take several courses in sequence.

For biology majors, you will need to complete 14 non-science courses in the Core, 17 science courses, and 9 electives. This means that each semester you should take ~2 Core courses, ~2 science courses, and ~1 elective for a balanced schedule, but you and your advisor will adjust this as needed.

Classes typically meet during the same semester and roughly the same times each year so if you want to see when a course might be offered, look at when (fall/spring) it was offered previously. **Note that this is not a guarantee!** Faculty go on sabbatical, have babies, etc. and a class might not always be offered on schedule. If you need to take a particular course at a particular time for graduation, check with the department chair who might be able to give a more definitive answer.

Not all students may be able to get into BL201/202 in the fall of their sophomore year. If this applies to you, note that BL118/119 and 121/126 are the only required courses for many upper-level biology electives. If you cannot get into BL201/202 in the fall, you can therefore take another upper-level biology course. 200-level and 300-level courses are good options. You should be very careful about taking a 400-level course before your junior year-students have done this in the past and been successful, but you should talk with your advisor to discuss if you are ready for the rigor of a 400-level course.

Withdrawing from a course

Is not the end of the world! Remember that if you withdraw from either the lecture or laboratory component of corequisite courses, then you must also withdraw from the corresponding lecture or laboratory course. If you withdraw from a course, you will often need to make up that course to get to the 40 3+ credit courses required for graduation. You can make up this course using Summer Away, Winter Away, or by taking 6 courses one semester. Discuss with your advisor which is the best option for you!

AP credit

For students who earned a score of 4 or 5 on the AP Biology exam can get credit for Organismal Biology and Lab (BL121/126) assuming that they first earn a grade of C or higher in Cell and Molecular Biology (BL118/119). For biology and BL/PY majors, this means that you can go directly from BL118/119 to BL201/202, assuming that there are spots available in that course.

Students who earned AP credit may still choose to take BL121/126 Organismal Biology. There are several good reasons for this: you may want a solid introductory foundation before you take upper-level courses or you may be headed for a career in the health professions and want to master this material. You do not need to inform anyone if you choose this option, just enroll in BL121/126.

Designated courses (Diversity, Forensic Studies, Environmental sciences, etc)

A course can fulfill both the Core diversity requirement and also another Core or major requirement.

You can use WebAdvisor to look up courses with specific designations (diversity, forensic studies, environmental sciences, service-learning, etc) by using the Course Types function on WebAdvisor. Note that FO is the code for the forensic studies major, IFS is the code for the forensic studies minor, and IES is the code for the environmental and sustainability studies minor.

UNDERGRADUATE SEARCHES: Search by Subject and Course Levels rather than Subject and Course Number because of undergraduate diversity course numbering. For example, if you search for PY 101, you will miss PY 101D. But if you search for PY 100-Level, the PY 101D course will appear in the search. In addition, choose Course Types when searching for diversity, global studies, interdisciplinary minor, service-learning, or summer session courses.

SUMMER SEARCHES: Choose Course Types when searching for summer session I (S1), II (S2), Alternate (S3), or Maymester (S4 - Undergraduate only) courses. When registering for summer courses, you may web register for sections up to 5 days prior to the course's start date, if web registration is open.

SERVICE-LEARNING SEARCHES: Use the Course Types drop-down menu below to search for Service-Learning (SL) designated sections of individual courses, or Course Listings in the Quick Links menu on Inside Loyola. On Course Listings, the Service-Learning designation will appear with course information under the Course Types column.

* = Required

Term*

Subjects	Course Levels	Course Number	Section
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Exclude Closed Courses Course Types



Overrides

Only the department chair can give you permission to override into a closed course. The course instructor cannot give you override permission. Because of the fire code, we cannot override students into laboratory courses and no overrides will be given.

The best way to get into a full course is to keep checking WebAdvisor-people drop courses between registration time and when the course starts. When someone drops, you can snag that spot.

New Courses

New courses are available most semesters! You can see the course descriptions on WebAdvisor and, for Biology majors, your advisor can let you know if they qualify as an A, B or C elective.

Which Anatomy and Physiology Course(s) Should I Take (if I want to take one of these)?

The following is our general advice, but as always, you should look at several potential schools to double check their specific admission requirements for your career path and the schools you are interested in.

If you are:

- Pre-med, pre-dental, pre-vet: Take BL301 Vertebrate Anatomy and/or BL452 General Human Physiology. Do not take the BL206-209 series. (Note that there is no requirement that pre-med, pre-dental, or pre-vet students take any of these courses, they are optional!)
- Pre-PA, PT, OT, nursing, pharmacy, genetic counseling: Take BL206/207 and BL208/209. Note that these courses are restricted to those students who need them for their careers. Contact the Director of Curriculum and Advising, Dr. Scheifele lzscheifele@loyola.edu for a copy of the course permission form. **Enrollment in the course is on a first come basis** and the form requires signatures from your advisor and the Pre-Health advisor, so plan ahead! Demand for these courses is high and you might not get into them until senior year.
- Not sure yet what path you want to go down: Wait! Do not take any of these courses (BL206/207, BL208/209, BL301 and BL452) until you are sure because it will prevent you from taking the other set of courses.

If you are a biology/psychology major, note the restrictions on how BL206/207 and BL208/209 count in the major: BL206/207 count as a free elective and BL208/209 count as a Group 7 Biology course.

BL206/207 and BL208/209 **must be taken at Loyola** or a consortium school to count towards your major!

Long-range planning of your courses

Plan ahead (have we said that before?!). Make a chart for each semester until you graduate. Add in specific courses/course sequences that are required. You do not need to pick out every course now, but put in the general course type. Remember that exactly which courses are offered will change, that's life! Sample planning grid:

Fall sophomore year Organic Chemistry I BL201/202 or Bio elective Core Core Free elective	Spring sophomore year Organic Chemistry II BL201/202 or Bio elective Math/states Core Free elective
Fall junior year Physics I BL elective BL elective Core Free elective	Spring junior year (study abroad!) Physics II Core Core Free elective Free elective
Fall senior year BL elective BL elective Core Free elective Free elective	Spring senior year BL elective BL elective Core Core Free elective

Summer Away and Winter Away Courses

The AASC website has requirements for getting credit for these courses (<https://www.loyola.edu/department/academic-advising/students/summer-away> and <https://www.loyola.edu/department/academic-advising/students/winter-away>)

You can apply at that same AASC website.

Each request will be reviewed by the department of the equivalent Loyola course. Be prepared to provide a copy of the syllabus for the course you want to take (last year's is probably okay).

All of this **MUST** be done **BEFORE** you take the class.

Study Abroad

Planning!

You need to have everything very well planned out if you want to make this happen

It is very difficult to take biology courses abroad (with the exception of Newcastle and some other sites).

Don't leave too many lab courses for your senior year because this will be tough to schedule.

Research Methods (PY291/292)

Bio/Psych majors need to take both Research Methods courses here at Loyola and in consecutive semesters.

Organic Chemistry

Pre-med students should take organic chem here at Loyola! Med schools like to see that you can take organic as part of a full course load at your home school.

The Loyola Faculty

You will need faculty to write recommendation letters for you in your senior year for grad school applications or for jobs, etc. Especially if you are thinking of going abroad for a full year, be cautious about the number of biology courses that you take abroad. You want to make sure that there are **Loyola** professors with whom you have taken upper-level courses who can write letters for you.

Pre-Health

Advising

Make an appointment to meet with Dr Gardner early in your Loyola career.

Take a look at the **fantastic** pre-health websites with specific information for pre-med, dental, physician's assistant, nursing, etc. students: <https://www.loyola.edu/academics/pre-health/explore-pre-health>

Get a general feel for what the admission criteria are for professional schools in your area of interest. You can do this by looking up ~5 different schools and noting common admission requirements.

Health-Related Experiences

You **must** plan on some type of health-related internship-you can get course credit and can also get paid for these! Dr. Gardner can help you to set one up or provide leads. The summer after sophomore year is a great time to do this.

Anatomy and Physiology

Refer to the section “Which Anatomy and Physiology Course(s) Should I Take” above!

The MCAT

Students typically take the MCAT in the spring of their junior year.

Be aware of what topics are on the MCAT test so that you are making an informed choice if you choose to put off chemistry, physics, or math courses until senior year.

Research

There is a lot of information on undergraduate research on the biology department's website: <https://www.loyola.edu/academics/biology/student-opportunities/research>

Finding a Faculty Mentor

All faculty in the biology department conduct research in their own labs and accept students to work with them. You can find out about faculty research projects and what areas of biology each faculty member works on at the biology department faculty website:

<https://www.loyola.edu/academics/biology/faculty>

If you are interested in a faculty member's research, reach out! We love our research areas and would love to talk with you about our work. But.....research spaces are limited-contact professors early (a couple semesters before you want to start) and **keep in touch** with them.

Research courses and programs

Biology Research

Students can get course credit for conducting research with a faculty member by enrolling in BL481 Biology Research I. You must speak with a faculty member beforehand and get their permission to enroll (see above, plan early!) This 3-credit course can count as one of your upper-level biology electives. **Note that you can get biology credit for one semester of BL481 or one 3-credit internship; a second can count as a free elective; any beyond those two do not count towards graduation requirements.**

Students can complete additional semesters of research! The second semester you would enroll in BL482 and this can count as a free elective for graduation (assuming you have not received credit for other internships or experiential courses). The third semester would be BL483, and this course would not count towards your graduation requirements.

Research in other departments

Remember that faculty in other science and non-science departments also conduct research. You may be able to arrange a for-credit research opportunity with them-reach out to the faculty member!

The Hauber Program

This is a 10-week summer program in which students can conduct research with a Loyola faculty member. More information is available at: <https://www.loyola.edu/loyola-college-arts-sciences/divisions/natural-applied-sciences/research-faculty-highlights/hauber-summer-research>

Applications are due in early spring. You must find a faculty sponsor before and get their permission before applying (see above, plan early!)

Summer Research at Other Institutions

These are highly competitive. It is often good to do research at Loyola first and then apply to these programs.

Deadlines are early (typically in the fall/early winter).

See the biology department website for some leads:

<https://www.loyola.edu/academics/biology/student-opportunities/research/research-opportunities>

Internships

Internship courses for credit

There is information on internships on the biology department's website:

<https://www.loyola.edu/academics/biology/student-opportunities/internships>

Internships can be a valuable tool to gain professional experience in your discipline and as a way of seeing potential careers up close to help clarify your career path. Students can get course credit for one internship experience as a 3-credit course that counts as an upper-level biology elective. **Note that you can get biology credit for one semester of BL481 Biology Research or one 3-credit internship; a second can count as a free elective; any beyond those two do not count towards graduation requirements.**

Internship courses in Biology must conform to the guidelines outlined in the Undergraduate Catalogue for your catalogue year. The internship is expected to provide the student with practical experiences (knowledge or skills) that ordinarily could not be obtained from courses completed at Loyola or associated programs. Internships are also distinct from jobs in that internship experiences occur in a professional setting (allied health, industry, or government agency) and with an on-site supervisor who consistently oversees the student and their professional development. Faculty can provide guidance and contact information for potential internship sites, but **it is the responsibility of the student to contact the internship site, arrange for an on-site supervisor, and set up the internship.**

Policies

For an internship course to count for academic credit within the Biology curriculum, the following criteria must be met:

All credit-bearing internship experiences must be arranged through a faculty sponsor in the Biology Department. The student will work in a professional environment as mentioned above (exceptions must be approved by the sponsor and department chair) under the guidance of an on-site supervisor. The student will provide contact information for the on-site supervisor to the faculty sponsor prior to approval of the internship course.

Internship courses generally do not count toward a minor in Biology without written permission from the Department Chair or Director of Curriculum and Advising in Biology.

Students must complete one hundred and fifty hours of on-site work, distributed evenly across the semester (typically 10 hours/week).

To participate in an internship course, students must have junior or senior status.

The internship course carries academic credit, and the grade will be determined by the faculty sponsor as in regular courses within the Biology Department.

Internships are 300-level biology courses.

Internship courses are created in WebAdvisor on an as-needed basis. Registration for an internship course requires the submission of a Specialized Study form no later than the last day of the scheduled drop/add period. The form must contain signatures from the faculty sponsor, department chair, and the Academic Advising and Support Center.

Expectations/Grading

Credit is awarded for an internship course only after a student demonstrates a quality and quantity of experiential learning appropriate to the professional discipline. The learning rubric will be established by the faculty sponsor with consultation of the on-site supervisor.

Student interns will minimally be expected to a) maintain a journal that describes in detail specific learning experiences, particularly those associated with discipline-specific techniques, protocols, etc that can only be learned through hands-on participation in a professional environment and b) prepare a term paper detailing the ideas, concepts, techniques and other aspects of the internship that were unique to the practical training and how the experiences have influenced career decisions/direction. All materials must be completed by the timeline established by the faculty sponsor and within the semester registered for the internship course.

Faculty sponsors may also use other forms of assessment to evaluate the level, quality and quantity of learning, including oral and/or written examination, as well as assignment of writing exercises associated with specific aspects of the professional environment in which the internship takes place.

Assignment of grades for individual assignments and the overall course are made by the faculty sponsor, although consultation with the on-site supervisor is generally expected to occur. Final decisions of grades are determined by the faculty sponsor and not the on-site supervisor.

Expectations for grade determination and grade distribution requirements should be provided to student interns by the faculty sponsor before the end of the first week of the term in which the internship course is offered.

Career Planning and Preparation

Freshman Year

Learn about different programs/careers and the requirements for each one. What does a day in the life look like? Reach out to professionals and ask them questions! Look for shadowing and volunteering opportunities.

Sophomore Year

Try to be narrowing down your career choices. Not sure? That's fine! College is all about exploration. Think about using the summer after sophomore year to shadow, volunteer, get an

internship and get some practical exposure to careers that you are thinking about. Remember, it's just as valuable to rule a career out as to decide on one.

Junior Year

Build practical experience in your field and get exposure to the profession you are considering through internships and other hands-on experiences.

Senior Year

Plan early if you are applying for graduate and professional schools. Know the deadlines and set up a schedule to get things accomplished. If you are going on the job market, make an appointment at Career Services or talk with your advisor about your resume/CV and how to describe all of your amazing Loyola experiences!

Advising Worksheets

Advising Worksheet for Biology Majors

Revised October 3, 2018

Name: _____

Class of **2021, 2022, 2023**

Note that it is the responsibility of the student to ensure their progression in the curriculum of their chosen major. You should refer to the Undergraduate Catalogue in effect when you started at Loyola University.

CORE COURSES (14 courses)

Composition WR100 _____
History HS101 _____ HS300-level elective _____ List course:
English EN101 _____ EN200-level elective _____ List course:
Philosophy PL201 _____ PL200-level elective _____ List course:
Theology TH201 _____ TH202-299 _____ List course:
Ethics PL300-319/TH300-319 _____ List course:
Language Lang104 _____ Language at 104 or 200-level in a modern foreign language (Chinese, French, German, Italian, Japanese, Spanish) **OR** one course in Greek or Latin at the 104 or 300-level _____ List language taken:
Social Science SS Elective _____ List course: SS Elective _____ List course:
(100-level SC, EC, PS, PY, and PY201-290)
Fine Arts FA Elective _____ List course:
(AH 110, AH 111, DR 250, DR 251, MU 201, MU 203, MU 204, PT 270, or SA 224)

Diversity Requirement: Students must complete one designated diversity course ("D" will follow course number in course booklet) which includes substantial focus on global, justice, or domestic diversity awareness. In many cases, a designated diversity course also fulfills one of the core course listed above. _____ (check off when completed) _____ (list diversity course taken)

BIOLOGY FOUNDATION COURSES (3 courses)

Cell and Mol Bio & Lab BL118 _____ BL119 _____ (*Natural Science Core*)
Organismal Bio & Lab BL121 _____ BL126 _____ (*Natural Science or Math/ Computer Sci Core*)
Ecol, Evol and Biodiv & Lab BL201 _____ BL202 _____

NATURAL SCIENCE AND MATH COURSES (7 courses)

Gen Chem I & Lab CH101 _____ CH105 _____ Gen Chem II & Lab CH102 _____ CH106 _____
Organic I & Lab CH301 _____ CH307 _____ Organic II & Lab CH302 _____ CH308 _____
Intro Physics with Lab I (4 cr) PH101 _____ Intro Physics with Lab II (4cr) PH102 _____
Calculus I MA251 _____ **OR** Calculus II MA252 _____ **OR** Statistics (ST265 or ST210) _____ (*Math Core*)

NOTE: *The math requirement for Medical School and other professional schools is variable. Contact the prehealth advisor.*

UPPER LEVEL BIOLOGY (7 courses) [Courses satisfying the distribution requirement must be taken a Loyola.

At least 4 of these need to be BL300+. Only 1 semester of research or internship counts within the major.]

Category A elective _____ List course:

(Intro to Biomedical Research, Synthetic Bio, Molecular Genetics, Endocrinology, Neurobiology, Development Bio, Histology, Cancer Biology, Cell Biology, Biochem I, Biochem II, Exploring the Human Genome, Stem Cell Biology, Bioterrorism)

Category B elective _____ List course:

(Human A and P I & II (**must be taken at Loyola to count in the major**), Introduction to Nutrition, Vertebrate Morphology, General Genetics, Botany, Comparative Physiology, Microbiology, Forensic Biology, Plant Physiology, Pharmacology, General and Human Physiology)

Category C elective _____ List course:

(Natural History of Maryland Species, Invertebrate Zoology, General Entomology, Ecology, Plant Ecology, Plant-Animal Interactions, Biology of Mammals, Forensic Entomology, Conservation Biology, Evolution, Animal Behavior)

CONTINUED ON NEXT PAGE

BL elective _____ List course:
BL elective _____ List course:

BL elective _____ List course:
BL elective _____ List course:

ELECTIVES (9 courses)

Restricted (3 courses - any non-Biology course not matched to a core or major requirement)

List course: _____ List course: _____ List course: _____

Free (6 courses - any course not matched to a core or major requirement)

List course: _____ List course: _____ List course: _____

List course: _____ List course: _____ List course: _____

TOTAL: 40 3+-credit courses are required for graduation.

1 credit and 2 credit labs do not count as courses, but are required for your major.

MINOR REQUIREMENTS (optional)

List Minor:

Refer to the Undergraduate Catalog to determine the courses required for your chosen minor. To complete a minor in addition to the Biology Program, students should use their core electives (when possible) and their electives. Certain minors may also require students to take a sixth course during selected terms.

Course required	Term taken

Notes:

- (1) Field courses (Category C) are predominately offered during the fall semester.
- (2) Human Anatomy and Physiology I and II w/ lab require special permission to register. To count within the Biology major they must be taken at Loyola.
- (3) 400 and most 300-level courses were designed for students with significant course work in biology and related subjects, and generally should be taken during either the junior or senior years.
- (4) Biology Research courses (BL 481 and 482) are typically taken during the senior year, although sometimes earlier. Students need to discuss research opportunities with interested faculty members at least one to two semesters before attempting to enroll in Biology Research. BL 481 and 482 require special permission from a faculty research mentor at the time of registration.
- (5) Seminar courses typically require completion of at least two upper level courses including one from the Category of the seminar course as pre-requisites (see course description in the Undergraduate Catalogue).

Advising Worksheet for Biology/Psychology Interdisciplinary Majors

Revised October 3, 2018

Name _____

Class of **2021, 2022, 2023**

Note that it is the responsibility of the student to ensure their progression in the curriculum of their chosen major. You should refer to the Undergraduate Catalogue in effect when you started at Loyola University.

CORE COURSES (not satisfied by ID Major) (12 courses)

Composition WR100 _____

History HS101 _____ HS300-level elective _____ List course: _____

English EN101 _____ EN200-level elective _____ List course: _____

Philosophy PL201 _____ PL200-level elective _____ List course: _____

Theology TH201 _____ TH202-299 _____ List course: _____

Ethics PL300-319/TH300-319 _____ List course: _____

Language Lang 104 _____ Language 104 or 200-level in a modern foreign language (Chinese, French, German, Italian, Japanese, Spanish) **Or** one courses in Greek or Latin at the 104 or 300-level _____ List language taken: _____

Fine Arts FA Elective _____ (AH 110, AH 111, DR 250, DR 251, MU 201, MU 203, MU 204, PT 270, or SA 224)

Diversity Requirement: Students must complete one designated diversity course (“D” will follow course number in course booklet) which includes substantial focus on global, justice, or domestic diversity awareness. In many cases, a designated diversity course also fulfills one of the core course listed above. _____ (check off when completed) _____ (list diversity course taken)

BIOLOGY COURSES (8 courses)

Cell & Mol Bio and Lab BL118 _____ BL119 _____ (*Math/Nat Sci Core*)

Organismal Bio and Lab BL121 _____ BL126 _____ (*Nat Sci Core*)

Ecol, Evol & Biodiver and Lab BL201 _____ BL202 _____

Three biology electives from the following courses: Comparative Physiology with Lab (BL316), Molecular Genetics (BL341), Endocrinology (BL401/406), Neurobiology (BL403 or BL405), Developmental Biology with Lab (BL410), Cell Biology with Lab (BL426/427), Evolution (BL435 or BL436), Stem Cell Biology with Lab (BL444), General & Human Physiology with Lab (BL452), Animal Behavior (BL454/BL455). Special accommodation for students taking Anatomy & Physiology I and II: With the successful completion of BL206/207 and BL208/209, BL206/207 will count as a **Free Elective** and BL208/209 will be allowed to count towards this requirement (**Group 7** on degree audits) even though it does not appear in the list above. BL206-209 must be taken at Loyola or a consortium school to count in this manner.

BL elective _____ BL elective _____ BL elective _____

Two additional biology electives: (not restricted to above list of courses)

BL200+ elective _____
 BL300+ elective _____

PSYCHOLOGY COURSES (8 courses)

Intro to Psychology PY101 _____ (*Soc Sci Core*)

Professional Development in Psychology (1 credit) PY200 _____

One Advanced Topics (Group I) Course (see Catalogue) _____ (Course taken: _____)

PY241 **or** PY242 **or** PY243 **or** PY244 _____ (Course taken: _____)

Research Methods I PY291 _____

Research Methods II PY292 _____

PY200+ elective _____

PY200+ elective _____

PY200+ elective _____

CONTINUED ON NEXT PAGE

ADDITIONAL MAJOR REQUIREMENTS (3 courses)

Statistics: ST110 (for B.A. students only) **or** ST210 **or** ST265 _____ (*Math Sci Core*)

Two courses from CH, CS, MA/ST, or PH (100+ level) _____ (Must be those typically taken by biology majors)

ELECTIVES (9 courses)

Restricted

- 1) _____ 1
- 2) _____ 1
- 3) _____ 1

Free

- 1) _____ 1
- 2) _____ 1
- 3) _____ 1
- 4) _____ 1
- 5) _____ 1
- 6) _____ 1

¹ The Pre Health Advisor should be consulted when selecting these courses. Additional Social Science courses will also fall here.

MINOR REQUIREMENTS (optional)

List Minor:

Refer to the Undergraduate Catalog to determine the courses required for your chosen minor. To complete a minor in addition to the Biology Program, students should use their core electives (when possible) and their electives. Certain minors may also require students to take a sixth course during selected terms.

Course required	Term taken

Notes:

- (1) *Field courses (Category C) are predominately offered during the fall semester.*
- (2) *Human Anatomy and Physiology I and II w/ lab require special permission to register. To count within the major they must be taken at Loyola.*
- (3) *400 and most 300-level courses were designed for students with significant course work in biology and related subjects, and generally should be taken during either the junior or senior years.*
- (4) *Biology Research courses (BL 481 and 482) are typically taken during the senior year, although sometimes earlier. Students need to discuss research opportunities with interested faculty members at least one to two semesters before attempting to enroll in Biology Research. BL 481 and 482 require special permission from a faculty research mentor at the time of registration.*
- (5) *Seminar courses typically require completion of at least two upper level courses including one from the Category of the seminar course as pre-requisites (see course description in the Undergraduate Catalogue).*

Advising Worksheet for Biology/Interdisciplinary Majors

Biology/ _____

Revised October 3, 2018

Name _____

Class of **2021, 2022, 2023**

Note that it is the responsibility of the student to ensure their progression in the curriculum of their chosen major. You should refer to the Undergraduate Catalogue in effect when you started at Loyola University.

CORE COURSES (14 courses)

Composition WR100 _____
History HS101 _____ HS300-level elective _____ List course: _____
English EN101 _____ EN200-level elective _____ List course: _____
Philosophy PL201 _____ PL200-level elective _____ List course: _____
Theology TH201 _____ TH202-299 _____ List course: _____
Ethics PL300-319/TH300-319 _____ List course: _____
Language Lang 104 _____ Language 104 or 200-level in a modern foreign language (Chinese, French, German, Italian, Japanese, Spanish) **Or** one course in Greek or Latin at the 104 or 300-level _____ List language taken: _____
Social Science SS Elective _____ SS Elective _____ (100-level SC, EC, PS, PY, and PY201-290)
Fine Arts Elective _____ (AH 110, AH 111, DR 250, DR 251, MU 201, MU 203, MU 204, PT 270, or SA 224)

Diversity Requirement: Students must complete one designated diversity course ("D" will follow course number in course booklet) which includes substantial focus on global, justice, or domestic diversity awareness. In many cases, a designated diversity course also fulfills one of the core course listed above. _____ (check off when completed) _____ (list diversity course taken)

BIOLOGY FOUNDATION COURSES (3 courses)

Cell and Mol Bio & Lab BL118 _____ BL119 _____ (Natural Science Core)
Organismal Bio & Lab BL121 _____ BL126 _____ (Nat Science or Math/Comp Sci Core)
Ecol, Evol and Biodiv & Lab BL201 _____ BL202 _____

NATURAL SCIENCE REQUIREMENT (2 courses)

Two courses CH, CS, MA/ST, or PH (Must be those typically taken by biology majors)

Natural Science Elective _____ (see Note 1) Natural Science Elective _____ (see Note 1)

Note 1: If one of the above electives is NOT a Math/Statistic course, the core course requirement will need to be satisfied through an elective or the other major. Math/Stat Core (check when completed) _____

Note 2: The choice of courses should depend on the career goals of the student

Note 3: Students interested in professional school should consult with their advisor about appropriate natural science course selection.

Medical School requirements include the following: BL118/119, 121/126, 201/202; CH101/105, 102/106, 301/307, 302/308; PH101, 102; and (variable) MA251 or 252 or ST 265 (or ST 210). **Contact the prehealth advisor.** Additional courses taken in these areas will satisfy Restricted Electives.

UPPER LEVEL BIOLOGY ELECTIVES (5 courses)

3 BL-200+ Electives: (1) _____ (2) _____ (3) _____
2 BL-300+ Electives: (1) _____ (2) _____

NOTE 1: There are NO distribution requirements for Interdisciplinary Majors. However, courses should be selected which would be most beneficial for career goals. Your Biology Advisor should be consulted.

RESTRICTED ELECTIVES (3 courses) (any non-Biology and non-2nd major course not matched to a core or major requirement)

(1) _____ (2) _____ (3) _____

CONTINUED ON NEXT PAGE

2nd MAJOR REQUIREMENTS AND FREE ELECTIVES (13 courses)

(1) _____	(6) _____	(11) _____
(2) _____	(7) _____	(12) _____
(3) _____	(8) _____	(13) _____
(4) _____	(9) _____	
(5) _____	(10) _____	

TOTAL: 40 3+-credit courses are required for graduation.

1 credit and 2 credit labs do not count as courses, but are required for you major.

MINOR REQUIREMENTS (optional)**List Minor:**

Refer to the Undergraduate Catalog to determine the courses required for your chosen minor. To complete a minor in addition to the Biology Program, students should use their core courses (when possible) and their electives. Certain minors may also require students to take a sixth course during selected terms.

Course required	Term taken

Notes:

- (1) Field courses (Category C) are predominately offered during the fall semester.
- (2) Human Anatomy and Physiology I and II w/ lab require special permission to register. To count within the Biology major they must be taken at Loyola.
- (3) 400 and most 300-level courses were designed for students with significant course work in biology and related subjects, and generally should be taken during either the junior or senior years.
- (4) Biology Research courses (BL 481 and 482) are typically taken during the senior year, although sometimes earlier. Students need to discuss research opportunities with interested faculty members at least one to two semesters before attempting to enroll in Biology Research. BL 481 and 482 require special permission from a faculty research mentor at the time of registration.
- (5) Seminar courses typically require completion of at least two upper level courses including one from the Category of the seminar course as pre-requisites (see course description in the Undergraduate Catalogue).

Advising Worksheet for Biology Majors in the Honors Program

Revised October 3, 2018

Name: _____

Class of **2021, 2022, 2023**

Note that it is the responsibility of the student to ensure their progression in the curriculum of their chosen major. You should refer to the Undergraduate Catalog in effect when you started at Loyola University.

ALTERNATIVE ROUTE THROUGH THE CORE (14 courses)

Human Drama: The Ancient World HN201 _____ **The Medieval World** HN202 _____
Renaissance to Modern HN203 _____ **The Modern World** HN204 _____

Eloquentia Perfecta HN210 _____

Engaging Nature HN215 (Not required for science majors)

Language (1) Lang _____ Language at 200-level or above in a modern foreign language (Chinese, French, German, Italian, Japanese, Spanish) **OR** one course in Greek or Latin at the 300-level or above _____ List language taken:

- Upper-level Humanities** (1) _____ (EN300-level)
(2) _____ (HS410-459 or HS460-499)
(3) _____ (Any course above PL320, excluding logic and ethics)
(4) _____ (Any course above TH320, excluding logic and ethics)

Fine Arts _____ (HN320 or HN321 or HN322 or HN323)

The Examined Life HN499 _____

Social Sciences SS Elective _____ List course: _____ SS Elective _____ List course: _____
(100-level SC, EC, PS, PY, and PY201-290; **at least one of these must be an honors version**)

Diversity Requirement: Students must complete one designated diversity course ("D" will follow course number in course booklet) which includes substantial focus on global, justice, or domestic diversity awareness. In many cases, a designated diversity course also fulfills one of the core course listed above. _____ (check off when completed) _____ (list diversity course taken)

BIOLOGY FOUNDATION COURSES (3 courses)

Cell and Mol Bio & Lab BL118 _____ BL119 _____ (Natural Science Core)
Organismal Bio & Lab BL121 _____ BL126 _____ (Nat Sci or Math/Comp Sci Core)
Ecol, Evol and Biodiv & Lab BL201 _____ BL202 _____

NATURAL SCIENCE AND MATH COURSES (7 courses)

Gen Chem I & Lab CH101 _____ CH105 _____ Gen Chem II & Lab CH102 _____ CH106 _____
Organic I & Lab CH301 _____ CH307 _____ Organic II & Lab CH302 _____ CH308 _____
Intro Physics I & Lab PH101 _____ PH191 _____ Intro Physics II & Lab PH102 _____ PH192 _____
Calculus I MA251 _____ **OR** Calculus II MA252 _____ **OR** Statistics (ST265 or ST 210) _____ (Math Core)

NOTE: The math requirement for Medical School and other professional schools is variable. **Contact the prehealth advisor.**

UPPER LEVEL BIOLOGY (7 courses) [Courses satisfying the distribution requirement must be taken a Loyola.

At least 4 of these need to be BL300+. Only one semester of research or internship counts within the major.]

Category A elective _____ List course:

(Introduction to Biomedical Research, Synthetic Bio, Molecular Genetics, Endocrinology, Neurobiology, Development Bio, Histology, Cancer Biology, Cell Biology, Biochem I, Biochem II, Exploring the Human Genome, Stem Cell Biology, Bioterrorism)

Category B elective _____ List course:

(Human A and P I & II (**must be taken at Loyola to count in the major**), Introduction to Nutrition, Vertebrate Morphology, General Genetics, Botany, Comparative Physiology, Microbiology, Forensic Biology, Plant Physiology, Pharmacology, General and Human Physiology)

Category C elective _____ List course:

(Natural History of Maryland Species, Invertebrate Zoology, General Entomology, Ecology, Plant Ecology, Plant-Animal Interactions, Biology of Mammals, Forensic Entomology, Conservation Biology, Evolution, Animal Behavior)

BL elective _____ List course:

BL elective _____ List course:

BL elective _____ List course:

BL elective _____ List course:

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ELECTIVES (9 courses)**Restricted** (3 courses - any non-Biology course not matched to a core or major requirement)

List course:

List course:

List course:

Free 5 or 6 courses - (any course not matched to a core or major requirement) (5 courses for students taking Greek or Latin)

List course:

List course:

List course:

List course:

List course:

List course:

TOTAL: 40 3+-credit courses are required for graduation.

1 credit and 2 credit labs do not count as courses, but are required for your major.

MINOR REQUIREMENTS (optional)**List Minor:**

Refer to the Undergraduate Catalog to determine the courses required for your chosen minor. To complete a minor in addition to the Biology Program, students should use their core electives (when possible) and their electives. Certain minors may also require students to take a sixth course during selected terms.

Course required	Term taken

Notes:

- (1) Field courses (Category C) are predominately offered during the fall semester.
- (2) Human Anatomy and Physiology I and II w/ lab require special permission to register. To count within the Biology major they must be taken at Loyola.
- (3) 400 and most 300-level courses were designed for students with significant course work in biology and related subjects, and generally should be taken during either the junior or senior years.
- (4) Biology Research courses (BL 481 and 482) are typically taken during the senior year, although sometimes earlier. Students need to discuss research opportunities with interested faculty members at least one to two semesters before attempting to enroll in Biology Research. BL 481 and 482 require special permission from a faculty research mentor at the time of registration.
- (5) Seminar courses typically require completion of at least two upper level courses including one from the Category of the seminar course as pre-requisites (see course description in the Undergraduate Catalogue).