Changes to the Biology, Botany, and Zoology Majors and Biology Minor Requirements Starting in the Fall 2019 Semester and How They Will Affect You

If you will be graduating at the end of the spring 2019 semester or at the end of the 2019 summer session, you may safely ignore everything listed below. If you will graduate at the end of the fall 2019 semester or later, some of the information below may apply to you. Consult with your advisor for clarification and further information concerning these changes.

The Department of Biological Sciences has revised the major requirements for the Biology, Botany, and Zoology majors as well as the Biology Minor. These changes will become effective for any student declaring these majors or the Biology minor beginning in fall 2019. Each concentration of the Biology major also sees changes beginning in fall 2019. The revisions to the majors and concentrations are designed to increase flexibility in satisfying major requirements and speeding progress to the degree. If you do not change from your current major, or concentration, you will have the choice of completing your major requirements using the requirements that were in effect when you declared the major (catalog years 2018-2019 or earlier) or you may elect to complete the major requirements using the new requirements (see below). Students pursuing the Biology minor can make a similar choice. There are no changes to the Botany or Zoology minors. If you elect to complete the major requirements using those stated in catalog years 2018-2019 or earlier, there are three changes to courses that may affect you. If you completed or will complete any of the following courses in the spring 2019 semester or earlier, that course will satisfy major requirements in either the old curricula or the new ones. The following changes apply to any offerings of these courses when taken in fall 2019 or later.

- **Genetics** – The format of the Genetics course will change beginning in fall 2019. The old course (spring 2019 and earlier) consisted of 3 lectures/week and one two-hour activity (discussion) session. Beginning in fall 2019, Genetics will be split into two courses: BIOL 340 (Genetics) will consist of a three-unit lecture only course (three lectures/week); and a one-unit BIOL 340L (Genetics Lab) that will meet as a once a week three-hour lab. BIOL 440, which had the course title of Genetics Lab will be receiving a new course title (Molecular Genetics Lab) and a somewhat different focus (see below). The purpose of the new BIOL 340L course is to provide experience in basic molecular biology techniques. Basic practical knowledge of these techniques is becoming essential in all areas of biology. If you take Genetics in fall 2019 or later, you will need to complete both BIOL 340 and BIOL 340L to satisfy the Genetics requirement of the Biology, Botany or Zoology majors.

- **Cell Biology** – The current Cell Biology course (BIOL 410) will be discontinued with a last offering of fall 2019. Beginning in the spring 2020 semester, it will be replaced by two new courses: BIOL 350 (Cell Biology), a lecture only course, and BIOL 450 (Cell Biology Lab), a lab only course. BIOL 350 will be a three-unit course consisting of three lectures/week. BIOL 450 will be a two-unit course consisting of two 3-hour labs/week. BIOL 450 will have a prerequisite of completion of BIOL 350 with a grade of C- or higher. If your current major requires BIOL 410, you may complete the Cell Biology requirement by taking BIOL 410 in fall 2019 or BIOL 350 in spring 2020 or later and you will not need to take the laboratory course (BIOL 450). BIOL 450 will be offered for the first time in fall 2020.

- **BIOL 440** – The course title of this course is changing from Genetics Lab to Molecular Genetics Lab. With the introduction of basic molecular biology laboratory skills in BIOL 340L Genetics Lab, BIOL 440 Molecular Genetics Lab will take on a new role and be focused on individual
research projects, rather than simply an introduction to standard molecular biological techniques and procedures. The new BIOL 440 will thus serve as a capstone type experience.

- **BIOL 412** – The course title will change from *General Bacteriology* to *General Microbiology*. The course content will change somewhat to include more information on microorganisms that are not bacteria.

- **BIOL 448** (Biogeography) – Beginning in fall 2019, this course will be co-listed with the graduate version of the course (BIOL 548). The undergraduate and graduate versions of the course will meet together; however, the course requirements of the two versions of the course will differ. BIOL 448 will be a required course in the revised Biology (Science Education) concentration and may be used for major credit in some other revised majors and concentrations.

- **ZOOL 476** (Principles of Animal Development) – The course prerequisites will change with the addition of BIOL 350 (Cell Biology) as a prerequisite. Enrollment in future offerings of ZOOL 476 will require completion of ZOOL 110, BIOL 340, and BIOL 350. The previous version of Cell Biology (BIOL 410) will also serve as a valid prerequisite for ZOOL 476. The field of developmental biology has changed so that an understanding of cell biology principles, especially signaling pathways, is necessary for the study of developmental processes.

**Changes to the Biology, Botany, and Zoology majors and Biology minor**

The specific changes to each of the majors and concentrations are provided in a separate set of documents. Those documents contain the current curricula as well as the revised curricula. We have formatted the document so that you can easily see the changes between the new and old curricula. For many of the new majors and concentrations, the new major will have fewer units and more flexibility in course selection. The organization of the new major may look quite different from that of the old major. However, it may be possible to complete the new major using nearly the identical set of courses as would satisfy the old major requirements. The decision as to whether to stay with the old major requirements or change to the new requirements is up to you. Your advisor can provide advice on which choice may be best for you and which is the best choice may differ between individuals.

Aside from the documentation provided with this email, a draft the next year’s (Academic Year 2019-2020) is available on the Registrar’s website at [https://registrar.humboldt.edu/sites/default/files/draft_hsu_catalog_2019-20.pdf](https://registrar.humboldt.edu/sites/default/files/draft_hsu_catalog_2019-20.pdf). The new Biology major curricula start at page 98, the new Botany curriculum on page 101 and the new Zoology curriculum on page 211.

**So what do I do if I want to use the new curriculum to satisfy my major requirements?** Unfortunately, this process is more complex than it has any right to be. First, talk to your advisor to see if using the new curricular major requirements is a good idea for you. For many students, especially those nearer to graduation, using the major requirements of your current major catalog year (academic years 2018-2019 or earlier) will provide a simpler pathway to completing the major requirements. If you stay with the current major requirements (catalog years 2018-2019 or earlier, you do not need to do anything, except to complete the degree requirements that you’ve grown to know and love on your current DARS. However, if you and your advisor agree that the new curriculum provides advantages to you over your current curriculum, the process of specifying that you are following the new curriculum is more than a little obtuse. The reason why this process isn’t as easy as it seems it should be is a document called Title
V. Title V is derived from laws passed by the California State Legislature. Title V is a set of regulations that cover almost every little detail of education in California from kindergarten through graduate school. HSU is required to follow the exact language in Title V with absolutely no wiggle room. Title V says that you can opt to follow the college catalog requirements that are in effect at the time you graduate (the new curricula will be in the catalog in the year you graduate from HSU). However, the specific language in Title V does not allow us to change your major catalog year (i.e., which curriculum you follow) until the semester you graduate. This means that even if you choose to follow the new curriculum, your DARS (& DARS Degree Planner) will list your degree requirements as those in effect when you declared your major. We are prohibited from changing your DARS so that it shows your progress in the major of the new curriculum. We can allow you to use the new curriculum to complete your major requirements, but the process is awkward at best. You and your advisor will work together to determine the courses that you will use to satisfy the major requirements for the revised major. Your advisor will then modify your DARS so that the courses you plan to use to satisfy major requirement will replace courses that are listed on your current DARS. For some students, this may involve waiving a major requirement on your current DARS completely or adding additional courses to your DARS. There will be a fairly easy way to see how you stand in satisfying the requirements of the revised major; however, it will probably not be available until shortly before the fall semester begins. On the page of your Student Center where you generate your DARS (not the DARS Degree Plan), you have the ability to generate a DARS for any major offered by HSU (sometimes called a What-If DARS). Once the new curricula are added to the DARS system, (near the beginning of fall semester), you can generate a What-If DARS for the new curriculum from the "Request an Audit" page (after clicking on DARS on the home Student Center page), by first clicking on Select a Different Program". Then in the "Degree" drop down menu, choose the desired major. For the "Catalog Year", chose “Fall 2019”. This will generate a DARS for the new curriculum and populate this new DARS with the courses you have completed or are registered for during the fall semester (or later semesters as they occur).

We realize this procedure is complex, but your advisor will help guide you through it.

If you are currently considering changing your major or concentration within the Biology major, the department strongly recommends that you wait until the fall semester to file the paperwork to change your major. That way your DARS for the new major will reflect that which will be in effect in the 2019-2020 academic year (the revised majors).

Below are some changes that apply to several of the majors or may affect a large number of students.

Sequencing of the introductory sequence, BOT 105, BIOL 105, ZOOL 110 and changing of the course prerequisites. Beginning in fall 2019, there will be a required sequence in which you take BOT 105, BIOL 105, and ZOOL 110. This will be true regardless of whether you pursue the old or new major curricula. BOT 105 will be your entry point into the introductory sequence and will not have any prerequisites. The prerequisites for BIOL 105 will change starting in fall 2019. Currently the prerequisites for BIOL 105 are CHEM 109 and CHEM 110 (as a co-requisite). Starting in fall 2019, the CHEM 110 co-requisite will be dropped, but you will still need to have completed CHEM 109 with a grade of C- or higher before enrolling in BIOL 105. We recommend that you complete CHEM 110 in the semester after you complete CHEM 109. It is also highly recommended that you complete BOT 105 prior to taking BIOL 105. ZOOL 110 currently does not have any prerequisites; however, beginning in the fall 2019 semester, ZOOL 110 will have a BIOL 105 prerequisite. You will need to have completed BIOL 105 with a grade of C- or higher before you can take ZOOL 110. The reason we are making this change is that the experience of the
Zoology faculty indicates that students are more likely to succeed in ZOOL 110 if they have already completed BIOL 105.

**Elimination of the Biology (Environmental Biology) concentration.** Beginning in the fall 2019 semester, no students will be allowed to declare the Biology (Environmental Biology) concentration. Students who declared this concentration prior to fall 2019 will be allowed to finish the concentration using the major requirements of their major catalog year. Students wishing to take a course list similar to the current Environmental Biology concentration will be able to do so through either the Ecology or General Biology concentrations.

**Change in the name of the Ecology Concentration.** The current Ecology and Biodiversity concentration will be retitled as the Ecology concentration.

**Changes in the Physics requirements.** The current majors and concentrations specify that you are required to take PHYX 106 and depending on the major or concentration you are required to also take either PHYX 118 (most majors & concentrations) or PHYX 107 (Cell/Molec & Science Education). In the revised curricula, except for Biology (Science Education), you can take either PHYX 118 or PHYX 107 (your choice) as your second Physics course. Science Education students will be required to take PHYX 106 & 107 to meet the state teacher credential requirements. Students intending to attend a professional school (medical, veterinary, pharmacy, etc.) should take PHYX 107 rather than PHYX 118 because the professional schools will not accept PHYX 118 as meeting their Physics prerequisite requirements. You may also take the calculus-based Physics sequence (PHYX 109/210) to satisfy major requirements; however, an exception will need to be entered on your DARS by your major advisor to indicate that your Physics requirement is met by these courses.