

November 16, 2018

To Whom it May Concern:

I am writing in **strong support** of the proposed new Undergraduate emphases for the School of Biological Sciences. These emphases are a major part of a 2 1/2-year effort to reform our undergraduate Curriculum. In the 20+ years since the previous reform, the world of biology has grown enormously. Entire fields such as genomics and super-resolution microscopy has come into being, while other fields still continue to prosper and grow. At the same time, interest in Biology has also grown, and so the school currently has the largest number of undergraduate majors on campus. We seek to serve these students by modernizing our curriculum, as described below.

Historically, our curriculum has provided students with an excellent broad education. Our core courses attempt to include all aspects of Biology. However, each year it becomes increasingly difficult to provide meaningful depth in instruction that is spread so wide. Our proposed new curriculum will include the existing broad major, but it acknowledges that this breadth is not for everyone.

These new emphases accompany a major shift in our first-year offerings. We previously have offered a single introductory freshman-level course, BIOL 1210. A new year-long core will replace this course. Its design used input from all faculty within the school, and is based on concepts and competencies also raised by the [Vision and Change](#) document from AAAS. Its instruction will use evidence-based methods that have proven to promote inclusive excellence and lead to higher learning. Freshmen will also take a two-semester sequence of lab courses, designed to promote curiosity and student-driven inquiry.

Our proposed new curriculum will then allow students to extend their focus in eight areas (four new emphases (Genetics & Genomics, Microbiology, Plant Biology, Neurobiology), and four existing emphases (Cell & Molecular Biology, Biochemistry, Physiology & Anatomy, and a renamed emphasis that, if approved, will go by the name Ecology, Evolution, and Environment), or remain in a program with broad training.

Because of the robust first-year experience, these emphases have more flexibility in core requirements. The emphases lay out coherent plans of study that will help students to select logically connected courses among our many electives. Importantly, the deeper focus will also provide students with stronger credentials, better skill sets, and improved prospects for contributing to the Utah economy. We also expect that the emphases will allow the students to obtain this better-focused education with higher four-year graduation rates.

This re-working of our curriculum is likely to lead to some changes in the patterns of course enrollment in the school. We are prepared to monitor the shifts in course demand, and believe that we can staff the courses required for each of the emphases, including the new ones, with no increase in cost.

We believe our proposed changes will improve all aspects of the undergraduate experience, will improve four-year graduation rates, promote inclusive excellence, and help provide a well-trained workforce of Utah's economy.

Sincerely,

A handwritten signature in black ink that reads "Denise Dearing". The signature is written in a cursive, flowing style.

Denise Dearing  
Director, School of Biological Sciences  
University of Utah



THE UNIVERSITY OF UTAH

## College of Science

November 29, 2018

David B. Kieda  
The Graduate School  
University of Utah  
201 Presidents Circle, Room 302  
Salt Lake City, UT 84112

Dear Dean Kieda:

I strongly concur with Dr. Denise Dearing's endorsement of the School of Biological Sciences faculty's proposal to create four new Undergraduate emphases (Genetics & Genomics, Microbiology, Plant Biology, and Neurobiology) and rename one emphasis if approved, which will go by the name of Ecology, Evolution & Environment that are a major part of a 2 ½ year effort to reform the undergraduate curriculum. The School of Biological Sciences has been ardent in their efforts to not only meet the needs of their growing undergraduate majors but to modernize their curriculum to include more evidence-based methods that have proven to promote inclusive excellence and lead to higher learning.

While the recent rechristening of the Department of Biology as "The School of Biological Sciences" may be the most clear illustration of the growing prominence of biology at the University of Utah, the field of biology has grown tremendously. To meet these challenges, the School of Biological Sciences has made key, new faculty hires, engaged in large-scale research collaborations, and utilized new facilities (i.e., Crocker Science Center). In addition, SBS has developed robust first-year experience for undergraduates that not only provides a solid foundation but allows students to later focus on eight area emphases (four new ones and four existing ones).

Because this plan would meet a significant need and demand expressed by the University of Utah, because it has been unanimously endorsed and the groundwork already initiated by the School of Biological Sciences director and faculty, and because the re-working of the curriculum provides our students with stronger credentials and better skill sets that should improve their prospects for contributing to the Utah economy, I enthusiastically endorse the proposal to establish the four new undergraduate emphases and one emphasis name change in the School of Biological Sciences.

Sincerely,

Janis Louie  
Associate Dean for Academic Affairs  
Henry Eyring Fellow and Professor  
University of Utah  
Department of Chemistry

**Complex choices faced by students and advisors.**

The proposed changes to the Biology undergraduate curriculum are widespread, and will introduce many new options for our undergraduates. We believe that these changes will be very well received by our students, but we also agree that there is potential for confusion. Below we outline our strategies for making the options easy for both students and advisors to navigate.

**Entering Students:**

Students will be introduced to the emphasis areas in their introductory Biology courses (BIOL 1610 and 1620). These courses cover the same range of topics as is represented by the eight emphases (three previously approved, but being updated, one with proposed name change and updating, and four new emphases). In these two courses, as topic that are foundational for an emphasis are introduced, we will mention the relevant emphasis. For example, the instructors will say something like .... *if you especially enjoy this material, you could focus your undergraduate studies on this topic by majoring in Biology with an emphasis in (emphasis name).*

Additional details about the emphases will be available to students through meetings with their advisors and also in the form of Academic Worksheets. These worksheets will detail all the requirements for each emphasis, and will be available both in the advising office and on-line at the School of Biological Sciences web site.

Another important factor for making these emphases usable by students is the degree audit. We have been made aware that a couple of the course menus have overlapping options, and that this might be problematic for the audits. We are actively working to identify these problematic areas, and will simplify choices to allow degree audits to run smoothly.

**Transfer Students:**

Most of Biology's transfer students come from Salt Lake Community College (SLCC), and we are already working to promote the success of these students. First, our advisors visit SLCC at least once a semester, where they work with students to help them understand how their credits transfer, and identify the requirements for earning a BS or BA in Biology. Second, SLCC students can make appointments with the U's biology advisors at any time, broadening their availability beyond the days that they visit. Third, in 2017-2018, Leslie Sieburth (Associate Director), Naina Phadnis (Director of Undergraduate Studies), and Denise Brenes, Director of Undergraduate Advising in the School of Biological Sciences worked with the HHMI-funded UPSTEM program, whose goal is to improve the success of students who transfer from Community Colleges to Universities. By working directly with faculty and advisors at SLCC, courses that transfer and apply to each emphasis have been identified, and clear pathways for each emphasis have been established. These pathways will be made available to SLCC students and advisors, and will likely improve both preparation and success of these students.

**Advisors:**

Denise Brenes has worked closely with the Curriculum Reform Committee, and continues to work with Leslie Sieburth and Naina Phadnis on curriculum reform. If approved, Ms. Brenes will

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work with the advisors to generate Academic Worksheets for each emphasis, and to ensure that all advisors understand the areas of biology represented by the emphasis, and the requirements for each. She will also work with advisors at the coordinator level throughout the College of Science to ensure college-wide understanding of the changes in the Biology major. Similarly, she will work with advisors from departments whose students enroll in our courses, such as Nursing and Kinesiology, and also pre-med advisors, to ensure that all interested parties understand the changes that are afoot in Biology.

We recognize the potential for confusion when we have students who joined the department under the current curriculum and also students who entered with the new curriculum. Old and new versions of emphases will be available for students who declared themselves Biology majors prior to Fall 2019, and the old versions of the emphases will expire at the end of Fall 2022 (four years after Spring 2019). We will strive to be flexible and accommodating as we help the students navigate their choices during this transition period.

Only the new emphases will be available to students joining Fall 2019 and later. Academic Worksheets for old and new versions of the emphases will be available during this period, and will be clearly marked. By recognizing the potential for confusion during this transition time, we will be vigilant about advising each student appropriate for their arrival date.