

**Life Sciences Program Academic Plan**  
**UPIII 2008**  
**October 13, 2008**

**Section I: Mission and Aspirations**

The Life Sciences Program is central to the success of all UW students in the life sciences. As such, the program is committed to fostering excellence in life science education. First and foremost, the program aims to provide the university community with the highest quality undergraduate education in the life sciences. This goal is twofold; the program will build and maintain excellence in the core curriculum for all life science majors across campus, as well as continue to develop an engaging curriculum for non-science majors to prepare them to be citizens in a scientifically rich world. In this light, the program strives to serve as a model within our region and at a national level. Specifically, the program will continue to focus efforts on 1) fostering cross institutional collaborations to continue building and supporting a cutting-edge curriculum, 2) supporting instructional practices centered on student learning and success in the life sciences, 3) developing program-level assessment that is embedded in all courses to improve instructional and assessment practices, 4) strengthening and expanding statewide collaborative discussions amongst K-12, community college and UW life science faculty, and 5) continuing to build a national network of life science directors and leaders across research institutions to improve life science education for all students.

**Section II: Previous Planning Accomplishments**

Since this is the first academic plan for the Life Sciences Program, there are no program action items to report on. However, the program was recognized in APII within the context of areas of distinction; the life sciences. Specifically, the Life Sciences Program, through collaboration with the Colleges of Agriculture, Arts & Sciences, and Health Sciences, has completed a renovation of the core life science curriculum as outlined in APII Action Item 9.

**Section III: Relevant Institutional Issues**

The current and future activities of the Life Sciences Program fit well within the 5 motifs presented in Creation of the Future 3. As the life sciences program provides a foundation for all life sciences majors on campus, the program fully supports the life sciences as an area of distinction as identified in **Motif 1: Building Depth versus Adding Breadth** and **Motif 2: Reinforcing and Refining Areas of Distinction**. The program has worked very hard on **Motif 3: Promoting Access to Higher Education** and will continue to do so. Most specifically, continuing to improve teaching in the program (**LIFE-1**) through engaging experiences for students is aimed to improve student success in the curriculum. Continued development of a program assessment plan (**LIFE-2**) will improve our knowledge about student learning and will allow informed changes in instruction and assessment practices. Because learning in the life sciences relies on a working knowledge of math, chemistry and physics, collaborations with these disciplines on curriculum redesign on introductory courses (**LIFE-3**) will provide students with a greater opportunity for success. Increasing cross-campus instruction with engaging faculty will offer students a broader insight into the life sciences (**LIFE-4**). Improving the quantity and quality of graduate students participating in the instruction of laboratories and discussions in the program will directly influence student learning (**LIFE-5**). Continued K-16 discussion in the life sciences (**LIFE-11**) have a specific goal of improving student success in the life sciences, particularly as they make academic transitions. **Fostering Excellence (Motif 4)** for ourselves and our students remains a foundational goal for the program. Excellence in teaching, curriculum and assessment (**LIFE-1 – LIFE-5**) most directly relate to excellence. Excellence in any program is not possible without adequate support and infrastructure, which also remains a primary need for the Program (**LIFE-6 – LIFE-10**). Finally, excellence can be achieved through

external activities as outline in **LIFE-11 – LIFE-13**. Continuing to foster excellence in the Life Sciences Program and to strengthen its role as an area of distinction on campus demands **Cultivating Leadership (Motif 5)** in many varied ways, both on and off campus. We believe the program will cultivate leaders in our classrooms and laboratories (**LIFE-1, LIFE-4, LIFE-5**), as well as through program assessment (**LIFE-2**), curriculum design and administration (**LIFE-3, LIFE-6, LIFE-10**), infrastructure for educational opportunities (**LIFE-9**), and statewide and nationwide endeavors (**LIFE-11 – LIFE-13**).

#### **Section IV: Action Items & Section V: Implementation** ***Teaching , Curriculum & Assessment***

##### **LIFE-1. Continue to explore innovative and cutting-edge methods for teaching and learning in all LIFE courses.**

Great progress has been made to better engage students in learning. However, much work remains in lecture, laboratory and discussion settings. We will continue to test and implement pedagogical practices supported by educational research.

##### **LIFE-2. Continue developing course and program level assessment.**

This will be achieved through frequent discussions about program goals, learning outcomes, instruction methods, and assessment practices across all LIFE courses. A database will be designed so we can track student learning on specific learning outcomes as they progress through the curriculum.

##### **LIFE-3. Explore curriculum changes in collaboration with Math, Chemistry, and Physics to provide better integration across the curriculum.**

Student success in the life sciences is linked to an understanding of math, chemistry and physics and the integration of these subjects within a life science framework. Instead of relying on students to make connections between these disciplines, we will work with these departments on curricular changes across shared courses to better integrate these subjects.

##### **LIFE-4. Increase participation in teaching of LIFE courses across the College of Arts & Sciences, the College of Agriculture, and the College of Health Sciences.**

We will focus on recruiting current faculty as well as working with departments to establish new hires with teaching responsibilities in the Life Sciences Program.

##### **LIFE-5. Work with the Graduate School, the Ellbogen Center for Teaching and Learning, and UW life science departments to increase the quantity and quality of Graduate Assistants instructing in LIFE course laboratories and discussions through recruitment and training.**

The success of the program hinges on the success of learning that occurs in laboratory and discussion settings. As graduate students are responsible for these learning environments, securing qualified graduate assistants is imperative. The life sciences program will support campus-wide efforts to increase the pool and quality of graduate students on campus as they serve a central role in the success of our undergraduate curricula.

#### ***Support & Infrastructure***

##### **LIFE-6. Continue to strengthen the collaboration between the College of Arts & Sciences, the College of Agriculture, and the College of Health Sciences in the shared administration of the Life Science Program.**

**LIFE-7. Work with the UW administration to increase the instructional excellence budget for the Life Sciences Program owing to continued growth in the program.**

An adequate instructional excellence budget is required to provide our students with a cutting-edge training in the life sciences. The University should be the leader in the state for teaching resources available to our undergraduate students.

**LIFE-8. Continue working with the UW administration to develop plans for the Science Laboratory Teaching Facility.**

With increasing student enrollments in LIFE courses and the subsequent impact on laboratory teaching space, the program will be actively engaged in the design of the new Science Laboratory Teaching Facility.

**LIFE-9. Explore ways to utilize the Berry Center for educational opportunities for undergraduates and K-12 students.**

The Berry Center will open up K-16 educational opportunities in the life sciences. The Life Sciences Program will assist in the development of these endeavors.

**LIFE-10. Reorganize and expand the administrative and laboratory structure of the Life Sciences Program by appointing an Assistant Director and hiring an additional APL.**

Owing to the reorganization of the Life Sciences Program curriculum and increased student enrollments, laboratory and administrative support must be modified. We will work to hire a third APL to oversee course laboratories and GA training, as well as an Assistant Director to help oversee the program.

***External Activities***

**LIFE-11. Strengthen relations between life science faculty in K-12, the Wyoming community colleges, and the University of Wyoming to improve communication about student learning, student success, and student transitions in the life sciences.**

We will approach life science education at the as a collaborative effort between K-12, community college and UW life science faculty. Regular discussions about student learning and student success will be facilitated. This work will be accomplished in collaboration with the Wyoming School-University Partnership and the UW Science and Mathematics Teaching Center.

**LIFE-12. Expand collaborations with the UW Science and Mathematics Teaching Center and the College of Education to improve K-16 STEM education, STEM secondary teacher education, and professional development opportunities for in-service STEM teachers.**

Will examine ways to create teaching and learning opportunities as well as educational research opportunities that bridge the Life Sciences Program, the SMTC, and the College of Education.

**LIFE-13. Strengthen relations and communication with Biology Program Directors from other research universities and work to establish the University of Wyoming as a center for life science education.**

Improving education for life science students at UW and across the country can be facilitated through shared ideas amongst leaders across the country. Fostering discussions amongst a network of Biology Directors will allow for communication of successful practices in undergraduate life science education. We will work to establish Wyoming as a center for sharing ideas and practices at the national level.