

Science 2010-11

Life Sciences First Year Experience: Preparatory Biology course development

Summary:

This initiative requests curriculum development funds to support the development of a Preparatory Biology class that will become part of a FYE for Life Science students.

Description

Demand for the major's biology (BI 211-213) and Biobonds /Anatomy and Physiology (BI 112/CH112, BI 231-233) biology sequences has increased dramatically over the last several years. Sections of BI 211 have increased from 12 sections in FY08 to 16 sections this year. We are currently (FY10) offering 21 sections of Biobonds and 20 sections of BI 231, a 20% increase compared to FY08. With the increased enrollment, many more students lack the necessary skills in science and math to be successful. Although most students are "successful" by the measurement of completing the class with a passing grade (BI 112 success rate was 86.4%, BI 231 success rate was 77.8% -- FY09 IRAP data), they have not obtained the grades needed to compete for admission to highly competitive health care fields. As a result, many students repeat classes; this limits access to the classes for students beginning their health professions preparation. To address the need of the underprepared Biobond students Supplemental Instruction classes were offered in 2007. These were discontinued because we found offering an additional 1 credit class concurrently did not reach enough students, or the correct students, and was thus not sustainable. This initiative will support students who are underprepared by developing a new class designed for the entry level Life Science student. This course will become part of a FYE for Life Sciences. We will work with the First Year Experience team to link to existing classes in writing and either a college success or effective learning class, providing students with the abilities and skills to be successful and confident beginning health professions or biology career. This is especially important since many of our students in both the BI 231-233 sequence and the BI 211-213 sequence are pursuing competitive health profession careers and/or scholarships. We will initially offer a FYE for students heading towards our Anatomy and Physiology classes (Life Science FYE-Health Professions) and then expand and/or modifying the FYE for biology majors (Life Sciences FYE-Biology Majors). Biology majors often pursue health professions programs such as medicine, pharmacy, veterinary medicine, and other careers. This initiative focuses on the Life Science FYE-Health Professions.

Questions and Answers

How is the initiative linked to the Unit Plans most recently submitted?

- 1. How does it continue the achievement of those goals?**

2. **If this is a continuation of an initiative started last year, make sure that relationship is clear.**

How is this initiative linked to the efficiencies and productivities plans you had last year?

1. **How does it continue the achievement of these plans?**
2. **If this is a continuation of an efficiency or productivity plan started last year, make sure that relationship is clear.**

This initiative supports both themes within the Science Division's FY11 unit plan. They are:

1. optimizing sustainable access for students and options for quality learning; and
2. optimizing the curricula and resources we already have (continuing from FY10).

By offering a FYE to meet the needs of entry level students who lack the skills to be successful in their subsequent biology classes, we will provide options for quality learning (theme 1). Better prepared students will increase retention and success in their subsequent classes and decrease the need for students to retake classes, addressing (2) optimizing our resources.

This initiative supports these specific goals:

- 2) Increasing retention among science majors, especially biology/pre-med/pre-pharm students.

Funding of this request will support the development of a course that will provide students the foundational knowledge to be successful in their subsequent life science classes, supporting quality learning. During the development of the course, full and part time faculty will identify content areas to include in the prep course (including content that will support success in CH 112 or the chemistry content within major's BI 211). The Preparatory Biology class will serve as a model for an expanded or additional FYE for biology majors, to be developed later. The inclusion of biology majors will work towards the division's objective of increased retention among science majors, especially pre-med/pre-pharm students.

- 5) Enhance curricula to support Health Professions, including online options.

This initiative is a continuation of the FY10 Initiative: "Enhance curricula to support Health Professions" which included the following objectives (1) Pursue development of a first-year experience and (2) Support for pre-med/pre-pharm majors. This work is underway as we are identifying full and part time faculty interested in designing the FYE and have contacted both the Learning Community Coordinator and members of the FYE team. Both groups are supportive of this work. The Life Sciences FYE planning group will also make a formal application for FYE Learning Community Curriculum Development in spring term to obtain support for developing the FYE linkages (faculty planning and development of linked materials). This initiative will support the development of a new course, Preparatory Biology.

The FY10 Initiative discussed above, "Enhance curricula to support Health Professions" is part of our plan for efficiencies and productivity in that it will increase success and retention. This has been a goal of the Division for successive Unit Plans.

Describe the resources needed:

We are seeking 100 hours of curriculum development money to support the development of a preparatory biology class. We plan to model this course after the successful Preparatory Chemistry class, CH 150.

What specific measurable program outcomes do you expect to achieve with this initiative? The outcomes should be specific enough to be measurable. Also, outline the method that will be used to determine the results.

1. Increased comfort level/engagement of students once they enter BI 112 (assess via entrance/exit surveys and via the student engagement assessment tools already in place for FYE-LC classes).
2. Decreased number of students repeating Biobonds (IRAP data)
3. Increase student success (IRAP data)
4. Increased success and retention of FYE students in their subsequent biology classes (BI231-233, IRAP data).

Department Priority:

8

Unit Resources:

Priority ranking for this initiative was determined by SAC members drawing numbers randomly. All the initiatives are valuable to the proposing disciplines and all have the support of the Division.

Resources not covered by curriculum development include additional faculty work time for designing the FYE, preparing the application to the FYE /LC team, Science Division stakeholder's meeting, and the application to the Curriculum Approval Committee. This work will be done during the remainder of the 2009-2010 academic year, prior to course development.

Funding Request: Carl Perkins

Funding Request: Curriculum Development

1. List the following information

- **Course Numbers (titles if not currently offered)**
- **Instructor Name(s) who will work on the curriculum development**

- **Whether each of the courses is in, or has been through, the curriculum approval process**

Preparatory Biology (proposed as BI 150)

Katie Morrison-Graham (representing Biobonds) and Gail Baker (representing Biology Majors) are submitting the request. The class and FYE was discussed and supported by the Biobonds faculty at our summer retreat. Christine Andrew, the current Biobonds coordinator, will coordinate the curriculum development project and it will be the major agenda item for the annual Biobonds faculty retreat. Initial development will focus on Preparatory Biology-Health Professions.

The course has not been through the curriculum approval process but will be modeled after Preparatory Chemistry which was approved last year and offered Fall 2009. We anticipate creating a 3-credit, non-lab course.

2. List each course number (or title) and the materials to be created for each class

- **Instructional goals, objectives, syllabi and outlines**
- **Lab instruction packets**
- **Practice, quiz, presentation &/or demonstration materials**
- **Other (specify)**

Preparatory Biology (proposed as BI 150)

Instructional materials will include instructional goals, learning objectives, syllabi and outlines, instructional packet and activities designed to achieve the course outcomes. These will be developed as a collaborative effort among the Biobonds faculty.

3. List each course number (or title) and give your timeline for beginning and completing each course curriculum development.

Preparatory Biology (proposed as BI 150)

The course goals and objectives will be developed for the course approval process during winter and spring term. A stakeholder's meeting will be held and the class will be submitted to the curriculum committee. Determination of the content will begin spring term and be completed over the summer along with the course materials.

4. What are up to 3 departmental instructional goals that are met through the development of curriculum in each class?

Goal 2) Increasing retention among science majors, especially biology/pre-med/pre-pharm students.

Goal 5) Enhance curricula to support Health Professions, including online options.

5. List each course number (or title) and give the value of the development of curriculum in each course to other faculty members.

Preparatory Biology (proposed as BI 150)

The Preparatory Biology class developed with these funds will be a collaborative effort among Biobonds and AP faculty, engaging them in discussions of teaching strategies and content that will best support pre-health professions students. The development will serve as a model for the FYE for biology majors. Students and faculty in the subsequent classes such as Biobonds will benefit because less time will need to be spent covering basic material which prevents the class from moving forward. Development will also coordinate with other faculty to develop the FYE learning community.

6. List each course number (or title) and say how many students will be served by the development of curriculum in each class.

Preparatory Biology (proposed as BI 150)

We plan to offer one section (one FYE) during the 2010-2011 year and then offer one/term the following year. This will serve 78 students/year. When the majors biology FYE is added, an additional 26 students will be served. The number of sections we offer may be limited by available classroom space.

7. List each course number (or title) and give the specific benefits to students that you expect from the development of curriculum in each class.

Preparatory Biology (proposed as BI 150)

Preparatory Biology will provide students with the abilities and skills to be successful and confident in their subsequent biology classes. Packaging Preparatory Biology as part of a FYE will also provide needed writing skills and effective learning/college success skills to enhance learning and increase student engagement and success in their future college program. This is important in that students pursuing Anatomy and Physiology need to also complete the prerequisite Chemistry class and biology majors take chemistry and physics classes.

8. List each course number (or title) and give the specific benefits for diversity that you expect from the development of curriculum in each class.

Preparatory Biology (proposed as BI 150)

Preparatory Biology course materials will be developed to address all learning styles. It will provide opportunities for the underprepared students to be successful in subsequent biology classes and careers.

9. List each course number (or title) and give the specific benefits to sustainability that you expect from the development of curriculum in each class.

Preparatory Biology (proposed as BI 150)

By increasing student success this will decrease the number of students repeating Biobonds or one part of the Biobonds learning community. This will decrease work on office staff and free up classroom spots to allow us to meet the needs of more students.

10. List each course number (or title) and give the specific effects on distributed learning that you expect from the development of curriculum in each class.

not applicable to this course

Hours requested for Curriculum Development funding:

Please enter the amount of one of the following:

- **100 hours maximum for new development.**
- **70 hours maximum for course revision**
- **50 hours for 3-4 credit conversion**
- **other (use if multiple courses addressed in one initiative**

Do not enter any characters other than numbers and a decimal.

How many hours are you requesting? If there are multiple courses addressed in the initiative, please list each course number (or title) and give the number of hours requested for each course.

100

Can this initiative be partially funded?

No

Partially funded curriculum development HOURS requested:

Explanation of effect of partial funding:

Funding Request: Technology Fee