

Science 2011-12

C.H.O.P.R.S. Chemistry Online Preparation for Retention and Success

Summary:

This initiative requests curriculum development funding to develop online CH 150 Preparatory Chemistry. This is the third year the Division has submitted this request; the need for an online CH 150 is greater than ever.

Description

Funding will support the development of online course materials for CH 150 as well as the exploration of open educational resources (OER) for CH 150 and the continuation of an assessment project started during 2010. Preparatory Chemistry is designed for students with little or no previous chemistry experience preparing to take General Chemistry (CH 221-223). Online CH 150 will meet Lane's Optimal Student Preparation, Progression and Completion strategic direction by providing efficient and effective advance preparation for studies in general chemistry. The online format will meet Lane's strategic direction for Online Learning by providing greater flexibility in scheduling for students and staff and more opportunities for students to enroll. Lastly, the online format will honor Lane's strategic direction for Sustainable Learning and Working Environment for current Lane students, faculty and staff as well as a significant number of future Lane students.

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 continues the achievement of the two themes in the FY2011-12 Science Division Unit Plan, which have been consistent over the past three years. This initiative also supports Lane's strategic directions for optimal student preparation, progression and completion; for online learning and educational resources; and, for a sustainable learning and working environment.

A) Optimizing sustainable access for students and options for quality learning

B) Optimizing the curricula and resources we already have.

Specific goals and activities are:

- 1) Manage enrollment effectively
- 2) Increase retention among science majors, especially biology/pre-med/pre-pharmacy students
- 6) Increase online learning options for students
- 8) Enhance curriculum in disciplines

This proposal builds on one of our initiatives from two years ago, the development of CH 150, Preparatory Chemistry. Although the curriculum development initiative was not funded, faculty developed the CH 150 course any way. Developing an online version of the course was part of the original concept for the course, affording students with

seat-class and distance learning options. Many potential students are required to take chemistry in order to transfer to a university. Increased success in chemistry will benefit students as they work to transfer to a four year school and will have a positive impact on enrollment retention and success in other science major classes.

The class was offered for the first time fall 2009. We offered two sections in 09-10, and two in 10-11. For Spring 2011, the single section filled by 9:00am on the first day of advanced registration; Brooke Taylor received numerous requests for enrollment in the course. We are unable to offer more sections at this time due to space and time limitations in Science. An online version of the class builds on the curriculum we already have and will provide students and staff more scheduling options. The chemistry discipline has also added sections of CH 221 increasing the demand for preparatory chemistry. With limited classroom availability, an online option is our best option to meet our unit plan goals of access to quality learning for our students.

Objectives

1) In order to support the enrollment growth of the college, the Science Division has maxed out its classrooms and laboratories. Developing online options is a vital strategy to continue to provide access to courses.

2) We created chemistry problem solving (CHPS), a supplemental studies class for CH 221. The CHPS class assists students while they are in CH 221, but we needed something to increase their chances of success before they get to CH 221. Increasing student success will lead to increased retention. Preparatory chemistry was designed specifically for students with little or no previous chemistry experience, many of which typically do not succeed in general chemistry. Offering the course multiple terms in the classroom and online will also make progress towards the goal of offering multiple tracks for majors in all areas of science and will increase FTE.

6) Materials for the online format need to be developed. Because this class has no lab we will be able to offer it exclusively in the online format, meeting a goal of the science division and the college. The online format may also increase FTE by providing a needed but unavailable preparatory chemistry class for students at four year schools where preparatory classes are generally not offered.

8) Preparatory chemistry was designed specifically to improve student success in general chemistry, a key component of many AAOT degrees. Online preparatory chemistry increases the student's options for completion. With added sections of CH 221, the demand for CH 150 will increase as well.

Describe the resources needed:

70 hours of Curriculum Development

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.

Specific outcomes are:

1. increased student success in CH 221 compared to current levels (completion and success data from IRAP).
2. high level of student satisfaction with the Prep course and their first term experience in CH 221 (survey data).
3. increased options for student success.
4. increased FTE in Chemistry discipline.

Department Priority:

4

Unit Resources:

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

CH 150 Preparatory Chemistry

The following resources will be devoted to this project: faculty work time not offset by curriculum development hours to develop outcomes, topics, course materials; IT support for online classes; support from the Science Resource Center (SRC). Online sections will need to be additions to the current Chemistry offerings, so additional staffing may be needed.

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**

CH 150 Preparatory Chemistry

Brooke Taylor

Approved, January 2009

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)**

CH 150 Preparatory Chemistry

Presentation, demonstration and student engagement materials specific for the online format following Quality Matters Rubric, revision and modification of developed in-class materials to online format, development of course packet, exploration of open-education resources

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

CH 150 Preparatory Chemistry

Summer 2011, completion by end of Fall 2011

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

This initiative meets these instructional goals for the Science Division:

1. Optimizing the curricula and resources we already have (continuing from FY09).
2. Increase online learning options for students
3. Increase retention among science majors, especially biology/pre-med/pre-pharmacy students

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

CH 150 Preparatory Chemistry

Faculty will benefit by having better prepared students in their general chemistry classes and more options in terms of

class scheduling flexibility. Developing the online format will increase the Division's capacity for developing and teaching other online courses.

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

CH 150 Preparatory Chemistry

We plan to offer one online section per term, including summer, for a total of 4 annually. Class size is 24 students per section = 96 students. This course does not duplicate anything the UO offers.

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.

CH 150 Preparatory Chemistry student benefits:

The course will be taken prior to students beginning the general chemistry sequence and is designed specifically to prepare students for CH 221 before they begin the sequence. Preparatory chemistry is an efficient option for students needing advanced chemistry. CH 150 will develop an online community among students. Students will use the same text as CH 221, saving the students money. Further, students will be introduced to the online homework system used throughout the General Chemistry sequence. Students will also be aware of resources available to help them succeed before entering general chemistry. The online format will provide added scheduling flexibility for students.

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.

CH 150 Preparatory Chemistry

Materials will be developed suitable to all learning styles. CH 150 is designed to assist students who lack a strong chemistry background. The course will be especially beneficial to first-generation college students or students who did not pursue a college-bound track in high school.

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.

CH 150 Preparatory Chemistry

CH 221 full time faculty is continuing to work on greening the general chemistry labs. Increased success and retention in CH 221 will provide a larger number of students the opportunity to learn about sustainability in a chemistry context. Green chemistry (sustainable) examples will be used when appropriate, for example the energy content of fuels will be analyzed when discussing the heat involved in chemical reactions. The online class will save students multiple trips to campus each week as well.

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.

CH 150 Preparatory Chemistry

Online activities will be developed for use on Moodle using the Quality Matters Rubric.

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.

70

Can this initiative be partially funded?

Yes

Partially funded curriculum development HOURS requested:

50

Explanation of effect of partial funding:

Fewer high quality online materials will be developed for the course. Without funding, the online format will not be developed and the Division will lose this opportunity to provide more access to CH 150 for students who would benefit.

Funding Request: Technology Fee