Initiative Report for Science 2009-10

Access, Retention and Success: Learning Enhancements in Anatomy and Physiology (LEAP)

Summary:

This initiative requests funds to (1) develop a hybrid anatomy and physiology sequence to improve student access; and, (2) buy laboratory equipment and support materials to improve and enhance instruction of future and current Health Professions students.

Description

This initiative requests funds to support the development of a hybrid A&P sequence and to purchase laboratory equipment and lab support materials. This request is in response to continued growth within the area of health care. In addition to adding 4 additional prerequisite classes this academic year to meet increased demand, we anticipate even more demand for our classes with the recent announcement of the $1.9 million U.S. Department of Labor grant to retrain Hynix workers for positions in health care and information technology industries.

Support for the development of hybrid classes will allow us to offer 2 complete sequences (one will start fall and one will start winter term). These are high stakes classes. Students need to be highly successful to compete for spots in the Health Profession programs and to be successful in such programs upon admittance they need a quality A&P sequence. The Anatomy and Physiology faculty believe that a properly developed hybrid class will meet these goals. This cannot be adequately developed with curriculum development and requires a reassignment time. Hybrid classes will provide access to students unable to attend 6 hours of class/week. They will have the added benefit of freeing up classroom space, a requirement for expanding our offerings.

We are also requesting the purchase of microscopes and additional models and materials to provide greater student access within and outside of the classroom. This will maintain hands-on learning and promote student success. The purchase of the skulls/bones will provide students enrolled in our hybrid sections the same opportunities as our traditional students. The ability to check materials out from the Science Resource Room for study outside of normal school hours greatly enhances student success.

The purchase of spirometers will incorporate state-of-the-art technology into our classroom and provide students with an environment that models the modern healthcare workplace. The collection and analysis of data allows our students to approach and exam issues related to anatomy and physiology from an evidence-based perspective (learning outcome adopted at the state level). Lab activities provide a powerful way to meet this outcome while learning the fundamentals of laboratory tests. This skill is especially

important for the newly adopted OCNE nursing curriculum. In addition the purchase of a laboratory set of spirometers will allow us to increase and sustain the academic and technical skills of the CTE students we serve.

Overall this request will enhance student retention and success. This is important to the community as well as to students. The Oregon Employment Department predicts three of the top ten areas of employment growth in the next eight years will be in health related occupations (Employment Predictions by Industry and Occupation, 2006 - 2016).

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 found within the 2009-2010 Science division Unit Plan. These themes are:

1. Meeting students needs for access and options for learning
2. Optimizing the curricula and resources we already have

This initiative supports the specific objectives of enhancing curricula to support Health Professions, including online options; and increasing online learning options for students.

One outcome of this initiative is the development of a hybrid anatomy and physiology sequence. This sequence will provide access to students and a different option for learning (theme 1). The other outcomes will support theme 2 by updating (purchase of state-or the art spirometers) and augmenting (4 new microscopes to complete classroom sets) our laboratory equipment and materials (bone/skull sets for students in hybrid classes and DNA kits for Biobond students).

This initiative also is linked to the specific college goals highlighted in the 2008-2009 anatomy and physiology discipline Perkin request. These goals were:

1. Foster the personal, professional, and intellectual growth of learners by providing exemplary and innovative teaching and learning experiences and student support services.

2. Create, enhance and maintain inviting and welcoming facilities that are safe, accessible, functional, well-equipped, aesthetically appealing and environmentally sound.

Last years Perkins initiative included a request for three Starboard touch screen systems. This request was made to provide exemplary and innovative teaching and learning experiences for students and to optimize our curricula. The request was not funded in full ($5031 requested/ $3354.00 was funded) but we are hoping to acquire the third system this year. Once these systems are installed they will be used to enhance the learning of complex physiology processes for all of our students including those in the hybrid classes this initiative is addressing. Files produced with the Star board touch screen systems can be saved and made available on class Moodle sites for out of class use.

Last years request is helping us secure additional models to support the expansion of our classes as increasing numbers of students seek careers in the health professions (we added 4 additional sections of biobonds this academic year and 2 new sections of A&P). In order to maintain accessible, functional and well-equipped classrooms and Science Resource Room last year we requested and were awarded the money to purchase models and pH meters. The additional models we are now purchasing will create separate class room model sets and Science Resource Room model sets and the pH meters will support chemistry lab activities in biobonds. These acquisitions will support student success since accurate identification of anatomical structures, and relationship of parts, is a foundational career skill of CTE students entering the Health Professions Programs.

Our current initiative also addresses the need to provide better access to teaching materials. We are requesting 10 DNA kits for our biobond students. Eight kits will be used to complete our classroom set and two will be placed into the Science Resource Room to provide access outside of class time. The 12 bones sets and 12 skulls will support the hybrid class students. Since students in the hybrid classes will not be coming to campus twice a week they will not be able to check out a bone set and a skull on different days. Thus each student will need a skull and bone set for home study to insure student success.

We are also requesting 4 microscopes. The typical enrollment in our biobonds and anatomy classes has increased since our sets of classroom microscopes were purchased (24 was a full class and it is now 26). An additional 4 microscopes will add to the current sets in the two classrooms with the heaviest microscopes use. We are also requesting 6 spirometers to update our respiratory volumes laboratory exercise with modern equipment. This purchase will improve student learning of important concepts in respiratory volumes and maintain a well-equipped environment.

Although this initiative is linked to last years initiative, it is not a continuation of an initiative started last year.

This initiative is not linked to the efficiencies and productivities listed in last years unit plan.

Describe the resources needed:

4 Leica DME Compound Microscopes. Includes 4X, 10X , 40Xand 100X plan objectives, with power cord wrap/lock and Siendentopf tube, $1114 each, Total $4456
12 Skulls and 12 carrying/storage boxes, $188 each shipping included; Total $2256
12 bone sets and 12 carrying/storage bag, $375 each shipping included; Total $4500
6 NDD EasyOne Diagnostic Spirometers with printer, $1499 each, Total $8994
10 DNA molymod kits for SRC, $73 each shipping included; Total $730
Total equipment/materials request: $20936

One term reassignment time (part time faculty backfill): Ave step of A/P PT faculty is step 13. [.336 x 14025 = $4712 Salary, plus $1428 OPE @ .303%] for total of $6140. This amount is equivalent to approximately 170 hours of curriculum development pay.

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.

Outcome 1: A measurable outcome is that our Anatomy and Physiology students continue to be successful in the Health Professions programs they enter. We will work with the IRAP to follow students that enter Lanes Health Professions programs. The equipment requested by this proposal will help maintain a quality learning environment for the approximately 400 students that the Anatomy and Physiology discipline serves annually. The majority of our students are either applying to, entering or enrolled in the Health Professions Programs.

Outcome 2: A measurable outcome is the offering of a hybrid sequence beginning Fall 2009 and one beginning Winter 2010. The sequence starting Fall will be taught by Stan Swank and the sequence beginning Winter will be taught by Katie Morrison-Graham. Each instructor will also access student retention and success by comparing the retention/success of the students in hybrid sections to those in the traditional classes taught by the same instructor each term.

The reassignment time requested will continue the work that is being done spring term 2009 with support from the SIF grant. One reassignment time Fall term 2009 will complete development of a hybrid Anatomy and Physiology course sequence. The reassignment time is the most efficient way to accomplish this important goal.

Department Priority:

6

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.

The college will need to provide technical support. Life Science Stockroom staff will support the hybrid course labs; the SRC will continue to support students in these courses.

Funding Request: Carl Perkins

Is this a Career & Technical Education program approved by the state and offered through Lane for credit?

No

If not a Career & Technical Education program, does your request provide considerable support for students enrolled in these programs?

Yes

Do you have an advisory committee that meets 2-3 times per year?

No

If request is for personnel, will funds be used to replace an existing position?

The money requested for personnel will be used to backfill one course for a full time anatomy and physiology instructor. The one course release will provide the time to work on curriculum for a three term anatomy and physiology hybrid sequence.

How will funding this initiative increase or sustain the academic achievement and technical skills attainment (GPA of 2.0 or better) of Career and Technical Education students?

Students will benefit from the laboratory equipment and support materials in the following ways:

- CTE students will have greater access to microscopes which will increase the opportunity for academic achievement. The ability to accurately identify microscopic structures is a foundational career skill for CTE students entering or enrolled in the health Professions Programs. By acquiring 4 additional microscopes our students learning beginning microscope skills in biobonds and histology skills in A&P1 will have access to their own microscope during class time.
- Students learning the structure of DNA will have access to a model kits in the classroom and in the SRC for hands on learning both in and outside of class time.

The atmosphere of the Science Resource Room builds support and collegiality among the CTE students preparing for high-skill, high-wage, and high-demand occupations in the medical-health fields. In addition access to material in the SRC allows for many of the special population students, for example single parents or displaced workers, to access the models at unconventional times, such as evenings and weekends.

- One of the learning outcomes adopted statewide for anatomy and physiology students is to approach and exam issues related to anatomy and physiology from an evidence-based perspective. Lab activities provide a powerful way to meet this outcome while learning the fundamentals of laboratory tests. The spirometers we currently have do not reliably work and when they are working they do not produce reliable data. The purchase of a laboratory set of spirometers will allow us to increase and sustain the academic and technical skills of the CTE students we serve.

Students will benefit from the development and offering of hybrid A&P sequences in the following ways:

- Hybrid classes will decrease the number of times students need to come to campus while still providing the critical laboratory time not available in fully online classes. This will provide access to populations who have difficulty attending LCC classes (single parents, those living in outlying areas, those unable to miss 6 hours of work/week)
- All A&P students could potentially benefit from the freeing up of classroom space for adding additional sections.

How will funding this initiative increase or sustain the number of CTE students that graduate or receive a one year certificate from Lane and help prepare the students for employment?

The number of CTE students that apply to and graduate from the Health Profession Programs is limited by the number of slots available for the particular program. These programs are highly competitive and Perkins funding is essential in allowing each and every student the opportunity to gain a strong foundational understanding of human anatomy and physiology. The graduation rates from the Health Professions Programs are extremely high. Job opportunities abound for these graduates and employment is high. The enrichment of our learning environment will positively impact our community as Lane Community College continues to provide competent, highly trained health care professionals.

EQUIPMENT $

COMPUTER HARDWARE $

COMPUTER SOFTWARE $

MATERIALS & SUPPLIES $

20935.00

CURRICULUM DEVELOPMENT (Hours)

PART-TIME FACULTY $

6140

TIMESHEET STAFF $

TRAVEL $

Can this initiative be partially funded?

Yes

EQUIPMENT $

(E) Explanation of effect of partial funding:

COMPUTER HARDWARE $

(CH) Explanation of effect of partial funding:

COMPUTER SOFTWARE $

(CS) Explanation of effect of partial funding:

MATERIALS & SUPPLIES $

9391

(MS) Explanation of effect of partial funding:

We are requesting a bare minimum that will ensure that we maintain the quality of our learning environment and instruction. We can only accept partial funding of equipment (spirometers only).

(4 microscopes but only 3 spirometers)

Although not ideal the number of spirometers could be reduced to three. This would mean one half of the class could do the lab while the rest of the class did another activity. We do not support partial funding of the microscopes since over the last five years our fill

rate in Bi112 has averaged 101% and our A&P 1 sections have averaged 99% fill rate. Thus both of our class rooms need full sets of microscopes.

We are requesting enough DNA kits to create a set of 12 for the classroom (we currently have 4 complete kits) with 2 dedicated to the SRC. Since the students build the DNA 2/groups works best however groups of 3 would still be do able. This would reduce the number to 6 total. Explanation of effect of partial funding:

CURRICULUM DEVELOPMENT (HOURS)

(CD) Explanation of effect of partial funding:

PART-TIME FACULTY $

6140

(PF) Explanation of effect of partial funding:

Not acceptable; one course release is needed

TIMESHEET STAFF $

(TS) Explanation of effect of partial funding:

TRAVEL $

(T) Explanation of effect of partial funding:

Funding Request: Curriculum Development

Funding Request: Technology Fee