Science 2008-09 Initiative: S.L.A.P.M.E: Student Learning of Anatomy & Physiology via Models & Equipment

Summary:

This initiative will purchase models and materials for the educational support for current and future Health Careers students and purchase StarBoard touch-screen systems for use in the A&P laboratory classrooms 16/105, 107 and 109.

Description:

The request for funds to purchase additional models and materials is a response to continued growth and the proposed expanded offerings of the Health Careers programs. With the addition of a physical therapy assistant program and a continued increase in the student population that we serve we are attempting to ensure that we maintain a quality learning environment.

The purchase of additional models will provide greater student access and success. The purchase of storage/transport modules for our anatomical models not only protects our original investment but provides student access to laboratory materials that can be checked out. 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 fiber optic illuminators for dissection microscopes allows detailed observation of anatomical specimens and microbial colonies.

For the past 12 years the Anatomy and Physiology discipline has been utilizing the so-called "smart classroom" in which lectures utilize computer workstations to incorporate laser discs, CD, DVD, and video projection, into a PowerPoint and web-based lecture presentation. This provides a seamless format to demonstrate complex and unique physiological processes and anatomical structures in a large screen presentation. Acquisition of StarBoard systems is the next step in further enhancing the student learning experience by allowing the integration of the images and instructor elucidation to be stored and accessed for student review.

Touch-screen technology has been in use in several science classrooms for the past two years. Every instructor that has used the StarBoard system has enthusiastically endorsed it as a valuable pedagogical tool. Unlike boards mounted at one end of the room, touch-screen systems can be placed in convenient locations that help the instructor maintain face-to-face contact with the students. In addition to improving student-teacher interaction, the images used during a class can be stored and provided for student review. Students in classes that currently have StarBoards report liking the system and instructors report greater student participation in these classes.

Touch-screen technology also enhances learning for students with disabilities. Learning disabilities are more readily overcome with interactive, face-to-face pedagogies. In

addition, captured images can be transformed into tactile resources by the tactile graphics machine in Disability Services. These resources can be accessed by blind students.

Moving toward touch-screen technology also has ergonomic value. Several faculty members observed that when they discontinued use of white- or black-boards, chronic shoulder pain went away. The purchase of models and materials and the incorporation of state-of-the-art pedagogical technology will provide students with an environment that models the modern healthcare workplace. These purchases 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).

Strategic Direction

- Achieve and sustain fiscal stability.
- Build organizational capacity and systems to support student success and effective operations.
- Commit to a culture of assessment of programs, services and learning.
- Create a diverse and inclusive learning college: develop institutional capacity to respond effectively and respectfully to students, staff, and community members of all cultures, languages, classes, races, genders, ethnic backgrounds, religions, sexual orientations, and abilities.
- Create, enhance, and maintain inviting and welcoming facilities that are safe, accessible, functional, well-equipped, aesthetically appealing and environmentally sound.
- Foster the personal, professional, and intellectual growth of learners by providing exemplary and innovative teaching and learning experiences and student support services.
- Position Lane as a vital community partner by empowering a learning workforce in a changing economy.

Learning Plan Goals

- Curriculum enhancement.
- Enhance student success and retention
- Facilities enhancement.

Student Affairs Plan Goals

- Create innovative, flexible, and collaborative programs that are responsive to the needs of students and employers and facilitate a smooth transition from college to the workplace.
- Develop policies and practices to increase student persistence.

- Ensure success-oriented systems and experiences.

College Council Priorities

- 1.b. Enrollment Management: Recruitment and Retention
- 1.c. Enrollment Management: Workforce Development
- 3. Efficiencies
- 4.1 Responding to unit plans/council plans: Innovation
- 4.3 Responding to unit plans/council plans: Enhancing Classrooms
- 5.2 Instructional Redesign: Leveraging Technology

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.*

In this year's Unit Plan, the A&P discipline stated, "Continued growth in A&P enrollment will impact demand for tutoring in the Science Resource Center, models for in and out of class use, staff to prepare the labs associated with our added sections, and computer support as we utilize current computers more heavily and ensure that all students in our program have equivalent access to technology." This initiative is a direct response to those needs. In order to maintain accessible materials for study in the Science Resource Room there is a need to procure additional models and equipment. In order to continue to provide exemplary teaching and learning experiences we are requesting Star board touch screen systems. The use of these systems will allow for the presentation of complex physiological processes that the student will be able to access from the classroom computers for download or review.

The A&P discipline historically has made excellent use of Carl Perkins funds to support student learning in the pre-requisite courses for Health Careers programs. It it'\s last Carl Perkins Initiative (2005-2006) A&P requested laboratory materials and models to support student learning. The request was fully funded and we were able to secure and implement the requested materials into our courses. Also included in our 2005 -2006 initiative was a request for the purchase of 16 flat screen monitors for BLD16/Rm 109. We successfully

procured these and now all of the anatomy and physiology classrooms are outfitted with updated student computers.

Student success and effective operations will be bolstered by having dedicated class room model sets and dedicated Science Resource Room model sets. Accurate identification of anatomical structures, and relationship of parts, is a foundational career skill of CTE students entering the Health Careers programs. Currently models must be removed from the Science Resource Room for classroom usage rendering them unavailable to students who wish to study outside of their own class time. This current initiative addresses the need to provide better access by increasing the availability via the purchase of additional models.

The acquisition and integration of class room StarBoard touch screen systems will provide exemplary and innovative teaching and learning experiences. The ability of the instructor to elucidate difficult physiological processes that can be accessed and reviewed by the student will further foster the professional and intellectual growth of our learners.

Science submitted a Perkins Initiative last year, requesting the three StarBoards for rooms 105, 107, and 109. The request was not funded. This is an ongoing need to bring these highly used classrooms to a state-of-the-art standard. The three rooms serve approximately 1500 students annually (not including summer).

Describe the resources needed:

- 9 fiber optic illuminators for dissection microscopes [9 @ $466 ea] ($4194)
- Anatomical arm model ($437)
- Anatomical leg model ($595)
- Large anatomical heart model ($638)
- 2 Large anatomical brain model [2 @ $425] ($850)
- Anatomical ovary model ($360)
- 60 storage/transport modules for A&P bone sets [60 @ $15 ea] ($900)
- Hand held pH meters [12 @ $80 ea] ($960)
- 3 StarBoard Systems ($5031)

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.

- The models and equipment requested by this proposal will help maintain a quality learning environment for the ~ 400 students that the Anatomy and Physiology discipline serves. The majority of our students are either applying to, entering or enrolled in Health Careers programs.

- The StarBoard systems will enhance the learning environment for ~ 700 students whose classes meet in the rooms in which the technology will be installed.

- Students in BioBonds and A&P will express satisfaction with the classroom technology and access to models and learning materials.

- Anatomy and Physiology students will continue to be competitive and gain admittance into the Health Career programs.

Department Priority:

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Unit Resources:

The department will provide technical installation and support for the StarBoards. SRC staff will prepare the models and materials for student use.

Carl Perkins Funding Request

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?

Question Not Answered

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 models and equipment in the following ways:
CTE students will have greater access to equipment and anatomical models which increases the opportunity for academic achievement. The ability to accurately identify macroscopic and microscopic anatomical structure is a foundational career skill for CTE students entering or enrolled in the Health Careers programs. By acquiring dedicated

model sets for the Science Resource Room it allows the approximately 400 CTE students to access the models 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. The group and individual studying provided by access to models increases student engagement and student success in A&P courses.
The addition of dedicated Science Resource Room model sets additionally allows for many of the special population students, for example single parents or displaced homemakers, to access the models at unconventional times, such as evenings and weekends.

Students will benefit from StarBoards in the following ways:

- Improved interaction with instructors because instructors don't have to turn their backs to write on the board.
- Improved understanding of material because the instructor can directly manipulate projected computer images and text.
- Improved ability to review classroom activities.
- Improved learning for students with disabilities.

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 Careers 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 Careers 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 $

Question Not Answered

COMPUTER HARDWARE $

5031.00

COMPUTER SOFTWARE $

Question Not Answered

MATERIALS & SUPPLIES $

8934.00

CURRICULUM DEVELOPMENT (Hours)

Question Not Answered

PART-TIME FACULTY $

Question Not Answered

TIMESHEET STAFF $

Question Not Answered

TRAVEL $

Question Not Answered

Can this initiative be partially funded?

Yes

EQUIPMENT $

Question Not Answered

(E) Explanation of effect of partial funding:

Question Not Answered

COMPUTER HARDWARE $

3354.00

(CH) Explanation of effect of partial funding:

If only two rooms are equipped with StarBoard technology, the learning opportunities of over 200 students will not be fully realized.

COMPUTER SOFTWARE $

Question Not Answered

(CS) Explanation of effect of partial funding:

Question Not Answered

MATERIALS & SUPPLIES $

8934

(MS) Explanation of effect of partial funding:

Question Not Answered

CURRICULUM DEVELOPMENT (HOURS)

Question Not Answered

(CD) Explanation of effect of partial funding:

Question Not Answered

PART-TIME FACULTY $

Question Not Answered

(PF) Explanation of effect of partial funding:

Question Not Answered

TIMESHEET STAFF $

Question Not Answered

(TS) Explanation of effect of partial funding:

Question Not Answered

TRAVEL $

Question Not Answered

(T) Explanation of effect of partial funding:

Question Not Answered

Curriculum Development Funding Request

Technology Fee Funding Request