Chapter 5: Program Initiatives to Improve Performance

"How do you propose improving future performance?"

Science Division projects and requests are grouped in four categories and are prioritized within each category. These categories are 1) new staff needs; 2) TACT requests; 3) Perkins; 4) Curriculum Development.

Science Division Priority 1

1. Science Division Staffing

- *Why do it?*
  Faculty: Current ratios of contracted to part-time faculty are too low to ensure program quality. Mentoring and monitoring of PT faculty is difficult to impossible to achieve at current staffing levels. With additional full-time staff, it will be possible to assure more timely completion of college work. The addition of faculty will be a step towards addressing the contractual obligation to move to a substantially full-time faculty.
  Support Staff: The Division has grown substantially in all areas over the past ten years, yet support staff levels have not grown to accommodate these changes. As a result, the workload for current support staff has grown past tolerable. Workplace morale, while generally good, is constantly tested by the demands of too much to do, and not enough time. Increased staff levels will reduce stress, increase productivity, and increase accuracy and safety. We have cobbled together three half-time positions through TACT and leveraged division funds, but the permanent nature of the work and the growing need for expertise and continuity require the creation of more securely funded full-time positions.

- *What will the product of this initiative be?*
  Faculty: One or more additional contracted faculty in each discipline within the division (Chemistry, Physics, Geology, Biology, Anatomy and Physiology, Engineering).
  Support Staff: The addition of 1) one full-time and one .733 FTE network and information system specialists, 2) a full-time life science lab technician, 3) one half-time office support specialist.

- *What is the need or intended use?*
  Faculty: To better serve students.
  Support Staff: 1a) The full-time network support person would service student and faculty computer and network support needs by maintaining software and hardware (within the bounds of licensing, warranty and technical limitations). 1b) The 0.733 FTE support person would primarily serve as a student/faculty/technology interface during the regular academic year, and would provide support for students learning to use software and CDs bundled with

science texts, assist in the creation and updating of faculty web pages, and maintain student computers in the Science Resource Room.
2) The Life Science lab technician would assist in the preparation of student lab material, and maintain life science resources such as the greenhouse and wet lab sites. Prior to the bond-supported Science Division expansion, course offerings and facilities were well-matched to the level of support staff. However, the amount of work and complexity of the various tasks has increased to the point that a student worker, whether work-study or some other casual employee cannot be expected to provide the expertise, responsibility, nor commitment required to adequately maintain the facilities.
3) An additional 0.5 FTE office support specialist would be a second point of first contact for students and faculty, thus allowing our administrative support specialist time to focus on the accounting and personnel support responsibilities she is tasked with completing. The increase in number of part-time faculty, the conversion to Banner, and the shift of responsibility from other areas of the college have substantially increased the amount and complexity of her work.

- *Is it feasible?*
  Faculty: This initiative must be funded within the constraints of general fund availability.
  Support Staff: At present, the technology fee supports two half-time positions within the division, and an hourly position in the life science stockroom is supported by Division funds; all new contracted positions would need to come through the general fund.

- *What would be the campus location of this request/project?*
  Science Division, main campus.

- *How many students (per year) will benefit?*
  The division serves over 6000 students per year.

- *How will students benefit?*
  Faculty: Increases in program quality will beneficially impact all students. Another outcome of increasing the number of full-time faculty will be the ability to serve more students. Students will be able to move more quickly through their programs, thereby decreasing their total costs.
  Support Staff: Increased network security, student access to technology, and lab safety, and more timely and precise completion of departmental support work.

➢ *Describe the resources needed.*
  Faculty: For each new position created, approximately $64,000 per year in salary and OPE. This was estimated by using the average starting salary of the five most recent hires in the Division. The total need is approximately $384,000. If one position is granted, further analysis is needed to determine which Science discipline would be assigned.

Support Staff:
Position 1a: $42,608 in salary and OPE
Position 1b: $31,232 S/OPE
Position 2: $37,733 S/OPE
Position 3: $13,816 S/OPE

- *List the possible funding sources*
  - *Can this project be partially funded?*
    Only in whole increments of each requested position.

  - *If so, what minimum cost?*
    Faculty: $64,000; If one position is granted, further analysis is needed to determine which Science discipline would be assigned.
    Support Staff: Position 3 is the least expensive, but lowest on priority list.,

- *Provide ORG & PROG codes* **NOT IN PRIORITY ORDER**
  Faculty:

Anatomy and Physiology	691110 111000
Biology	691120 111000
Chemistry	691200 111000
Engineering	691700 111000
Geology	691500 111000
Physics	691600 111000
Support Staff:	
Lab Support	691800 111000
Administration	691001 111000

- *How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?*
  Faculty: College Mission points addressed: enhancing opportunities in lower division college transfer programs, foundational academic skills development, and lifelong personal enrichment.
  Support Staff: These support positions serve to increase student access to quality instruction in diverse settings and modalities. These positions help to create diverse learning opportunities and contexts, and serve to better support recent expansion in the Division. This initiative improves the working and learning environment and better respects the work of our existing support staff, thus creating a more caring community. It responds to internal challenges to personnel infrastructure created by changes within the Division.

The following table shows headcount and ratios of part time and full time faculty over a three-term period (spring 2003, fall 2003, winter 2004)

		# CREDIT FACULTY						
		FT		PT		ratio	# CREDIT SECTIONS BY	
		HCT	FTE	HCT	FTE	FT/PT (FTE)	FT	PT
P03	ANATOMY & PHYSIOLOGY	3	3	8	3.00	1.00	6	9
	BIOLOGY*	6	6	10	3.36	1.79	18	11
	CHEMISTRY	4	4.38	5	2.71	1.61	10	8
	ENERGY MANAGEMENT	1	1	5	1.00	1.01	1	4
	ENGINEERING	1	0.27	0	0.00	.27:0	1	0
	GEOLOGY*	1	1	4	1.67	0.60	4	5
	PHYSICS	2	2	5	2.08	0.96	5	6
*PT-HCT, one is in both disciplines								
F03	ANATOMY & PHYSIOLOGY	3	3	5	2.00	1.50	8	6
	BIOLOGY	6	6	9	4.36	1.38	17	14
	CHEMISTRY	4	4	5	2.19	1.82	11	7
	ENERGY MANAGEMENT	1	1	4	0.96	1.04	1	4
	ENGINEERING	2	0.49	0	0.00	.49:0	2	0
	GEOLOGY	1	1	5	3.00	0.33	0	9
	PHYSICS	2	2	3	1.00	2.00	6	3
W04	ANATOMY & PHYSIOLOGY	3	3	6	3.33	0.90	9	10
	BIOLOGY	6	6	11	4.56	1.31	17	14
	CHEMISTRY	4	4	9	4.03	0.99	6	12
	ENERGY MANAGEMENT	1	1	6	1.79	0.56	0	6
	ENGINEERING*	1	0.27	1	0.33	0.82	0	1
	GEOLOGY	1	1	7	4.00	0.25	0	12
	PHYSICS*	2	2	4	1.37	1.46	6	4
*PT-HCT, one is in both disciplines								
	DIVISION AVERAGE	18.33	17.47	37.33	15.58	1.15	42.67	48.33

Faculty on sabbatical are included in count of FT faculty

2. TACT Requests

Chapter 5: Program Initiatives to Improve Performance

"How do you propose improving future performance?"

Initiative Title: Science Student Technology Fee Use Initiative

- Describe Initiative
  - *Why do it?* The goal of the initiative is to provide science students with technological needs for learning science by effective use of student technology fee funds.
  - *What will the product of this initiative be?* The product of this proposal will primarily be maintenance of our existing information technology system of computers and related infrastructure components, and increasing science student access to technology.
  - *What is the need or intended use?* There are seven specific needs; detailed descriptions of each follow this narrative. The Division prioritized these two ways. The first way was to prioritize within TACT categories of "maintain existing technology" and "increasing science student access to technology". The second way we prioritized was to rank all seven according to their merits.

Specific request	Rank within category	Overall rank	Total requested	Minimum useable amount
Science Student Computer Support	1	1	$37,604	$37,604
Science Student Computer Technology Maintenance Project	2	2	$13,906	$13,906
Network and Electrical Access for Computers funded by Carl Perkins (co-apply to Perkins)	4	4	$4,300	$4,300
Completion of Anatomy & Physiology project partially funded by Perkins last year (co-apply to Perkins)	3	4		
Science Instructional Delivery: Projection Systems	1	3	$29,400	$14,700
Physics Student Data Acquisition Project	2	6	$33,155	$8,609
Science Instructional Information Consolidation Project	3	7	$5,469	$5,469

  - *Is it feasible?* TACT funds have been efficiently used since the inception of the program. This initiative directs student technology fee funds to the best, most feasible use.
  - *What would be the campus location of this request/project?* The project would take place within buildings #16 and #15 where science classes are taught and tutored.

- *How many students (per year) will benefit?* The project will benefit approximately 6,300 students/year.
- *How will students benefit?* Students will benefit in several ways. They will benefit by direct human assistance when intimidated or confused by instructional technology; by hands-on access to science technology; and by exposure to technology not available without this initiative.

➢ Describe the resources needed
This initiative requires $129,409.

➢ List the possible funding sources
Possible funding sources include those dispersed through TACT and the Carl Perkins fund.
- Can this project be partially funded? Partial funding is possible, although all components of the initiative are needed.
- If so, what minimum cost? The list of projects has been prioritized by the Science Division, which provides the incremental minimums.

➢ Provide ORG & PROG codes
610000 111000

➢ How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?

This project recognizes and respects the unique needs and potential of the science learner and acts in response to technological changes of innovation. It also anticipates and responds to internal and external challenges in a timely manner. It will optimize student success and enhance instructional delivery through the use of technology.

Science Division Priority 2 **TACT Priority 1**

IF FUNDING SOURCE COULD BE TACT FUNDS, COMPLETE THE FOLLOWING:

Title of request:
Science Student Computer Support

Category of request:
Maintain existing technology

How does this request fit in with other unit or college technology plans?

TACT GOALS:
TACT Goal 1, Objectives 1.1 and 1.2
TACT Goal 2, Objectives 2.2, 2.3, 2.4, 2.5

Cost breakdown, including any unit resources being applied to the project (i.e. hardware, software, wiring, installation costs; timesheet staffing, licensing, other)

Computer Support Specialist #1
Hourly up to 1039 hours for computer labs.....$18,802
Computer Support Specialist #2
Hourly up to 1039 hours for Science Resource Center.....$18,802

Total..... $37,604

IF FUNDING SOURCE COULD BE CARL PERKINS FUNDS, COMPLETE THE FOLLOWING:
N/A

Additional Information:
This would increase opportunities for student access to information and technology as planned by TACT. It would benefit students by maintaining computer system integrity and by helping students use computer hardware and/or applications.

The positions were funded during the 2002 through 2004 academic years. As a result, we have had fewer problems with student computer systems. Delivery of instruction is more seamless and can better utilization of existing hardware and software.

Science Division Priority 4 **TACT Priority 2**

IF FUNDING SOURCE COULD BE TACT FUNDS, COMPLETE THE FOLLOWING:

Title of Request:
Science Student Computer Technology Maintenance Project

Category of request:
Maintain existing technology

How does this request fit in with other unit or college technology plans?
TACT Goal 1, Objectives 1.1 and 1.2
TACT Goal 2, Objectives 2.2, 2.3, 2.4, 2.5

Cost breakdown, including any unit resources being applied to the project (i.e. hardware, software, wiring, installation costs; timesheet staffing, licensing, other)

Software: 228 ALA Value Bundle Student Workstation licenses 6,498
Workstation restoration software 1,416
Hardware replacement components:
Keyboards, hard drives, monitors, printer supplies, cables, RAM, mice, power supplies, accessory drives, Cmos batteries, cleaning and data tapes, UPS batteries, switch components, projector lamps, sound cards, NIC 3,500
Printer replacement (1)for SCI 115.....1,415
Printer duplexers (7) for labs 1,743
Projection system replacements 2 (projectors,computers, mounting) 14,700
Warranty extensions 1,427
Total..... $30,699

IF FUNDING SOURCE COULD BE CARL PERKINS FUNDS, COMPLETE THE FOLLOWING:
N/A

Additional Information:
A primary need is to maintain the computer technology that is already in place, and to keep related technological components functioning as planned by TACT.

We also need to renew necessary software licenses for the computers we already have, and to replace faulty hardware.

The projection system replacements include one for SCI 144, which was for Laser training. The projection system in SCI 144 was removed prior to science instructional use and was supposed to be included with the room. The other projection system needs to be ceiling mounted in SCI 142. It would replace, and leave a mobile system to serve Building #15, room 206 where science and other classes are taught.

Science Division Priority 6 **TACT Priority 3**

IF FUNDING SOURCE COULD BE TACT FUNDS, COMPLETE THE FOLLOWING:

Title of request:
Science Instructional Delivery: Projection Systems

Category of request:
Increase student access to technology

How does this request fit in with other unit or college technology plans?

TACT 5-Year Strategy - Goal 1, Objectives 1.1 and 1.2
TACT 5-Year Strategy - Goal 2, Objectives 2.2, 2.3, 2.4, 2.5
TACT One Year Recommendations, item VIII

Cost breakdown, including any unit resources being applied to the project (i.e. hardware, software, wiring, installation costs; timesheet staffing, licensing, other)

Hitachi 995 Projectors 2 @ $4,502ea $9,004
Wireless Keyboards RF-250 (2) @ $298ea 596
Computer systems (2) 2,100
Installation 3,000
Total $14,700

Location: SCI 188, Building#15: Rom 206

IF FUNDING SOURCE COULD BE CARL PERKINS FUNDS, COMPLETE THE FOLLOWING:
N/A

Additional Information:
This project will provide instructional delivery systems necessary for science instruction in rooms where they are needed.

Science Division Priority 8 **TACT Priority 4 (co-applied to Perkins)**

IF FUNDING SOURCE COULD BE TACT FUNDS, COMPLETE THE FOLLOWING:

Title of request:
Completion of the partially-funded Perkins Project for Anatomy & Physiology

Category of request:
Maintain existing technology

How does this request fit in with other unit or college technology plans?

TACT Goal 1, Objectives 1.1 and 1.2
TACT Goal 2, Objectives 2.2, 2.3, 2.4, 2.5

Cost breakdown, including any unit resources being applied to the project (i.e. hardware, software, wiring, installation costs; timesheet staffing, licensing, other)

(5) Dell P-4 computers with CD/DVD drive capability, monitors, and software $8,375

IF FUNDING SOURCE COULD BE CARL PERKINS FUNDS, COMPLETE THE FOLLOWING:
See Perkins request priority #1 below for detailed information.

Additional Information
Only five of ten requested computers for Building #16, Room 105 were funded by Perkins last year and this project would complete the needed set, which is used by Anatomy & Physiology students.

Science Division Priority 10 **TACT Priority 5 (co-applied to Perkins)**

IF FUNDING SOURCE COULD BE TACT FUNDS, COMPLETE THE FOLLOWING:

Title of request:
Network and Electrical Access for Computers funded by Carl Perkins

Category of request:
Maintain existing technology

How does this request fit in with other unit or college technology plans?
TACT Goal 1, Objectives 1.1 and 1.2
TACT Goal 2, Objectives 2.2, 2.3, 2.4, 2.5

Cost breakdown, including any unit resources being applied to the project (i.e. hardware, software, wiring, installation costs; timesheet staffing, licensing, other)

24 data ports and duplex electrical receptacles installed in Building #16, Room 188 where Energy Management and other training takes place..... $4,300

IF FUNDING SOURCE COULD BE CARL PERKINS FUNDS, COMPLETE THE FOLLOWING:

What evidence do you have that shows special populations (disabled, economically disadvantaged, single parent, displace homemaker, academically disadvantaged and limited English proficiency) have access to your programs.

Students from special populations have applied, have been accepted, and are currently enrolled in the program. Student records are available as evidence.

How does this request fit in with at least two of the Carl Perkins related goals (listed separately)?

I. Student Skills Gain Goal:
Improve the academic and technical skills of students participating in vocational and technical education programs by:

A. *Strengthening the academic components of such programs to enable students to meet the institution's academic requirements.*
B. Strengthening the vocational and technical components of such programs to ensure learning in vocational and technical subjects.

Strategy #1: Students will have the tools to conduct project research while learning how to make accurate measurements that are used in the energy field, which translate to employment upon completion.

Describe how this project might show collaboration with Lane County high schools.
Our collaboration will be different from the usual efforts to generate an incoming student base through the high schools. Energy Management Program (EMP) students would be available to visit

schools requesting assistance with lighting audits. Any efforts to conduct energy audits will be enhanced by this project because the audits utilize software, which is client/server based and depend on network connectivity.

Additional Information:

Ten new computers purchased with funds provided through the Carl Perkins grant will be placed in the room, which is used for technical training of Energy Management Program students. Currently, data and electrical access is only available for about half of twenty computers needed to train our students.

The room needs additional data ports and electrical receptacles for Internet access, printing, and file sharing.

Science Division Priority 12 **TACT Priority 6**

IF FUNDING SOURCE COULD BE TACT FUNDS, COMPLETE THE FOLLOWING:

Title of request:
Physics Student Data Acquisition Project

Category of request:
Increase student access to technology

How does this request fit in with other unit or college technology plans?
TACT GOALS:
Tact Goal 1, Objectives 1.1 and 1.2
Tact Goal 2, Objectives 2.2, 2.3, 2.4, 2.5

Cost breakdown, including any unit resources being applied to the project (i.e. hardware, software, wiring, installation costs; timesheet staffing, licensing, other)

Lap-top lab station computers, 8 @ $1,971	$15,768
Portable data acquisition systems:	
CBL Units; 24 @ $220	$5,280
Portable Motion Sensors; 12 @ $69	828
Accelerometers; 24 @ $98	2,352
Software:	149
Lab set of dynamics equipment:	
Motion sensors; 12@ $85	1020
Analog to Digital Converter; model 750 USB interface; 6 @ $659	3,954
Dynamics Tracks and carts; 6 @ $439	2,634
Force Sensors, 6 @$195	1,170
Total	$33,155

IF FUNDING SOURCE COULD BE CARL PERKINS FUNDS, COMPLETE THE FOLLOWING:
N/A

Additional Information:
There is currently no source of funding for this project, which is necessary for a second physics laboratory / classroom that has been added. The project allows student data acquisition outside of the classroom.

The systems and equipment described above use sensors and interfaces that connect directly to the computer.

Science Division Priority 14 **TACT Priority 7**

IF FUNDING SOURCE COULD BE TACT FUNDS, COMPLETE THE FOLLOWING:

Title of request:
Science Instructional Information Consolidation Project

Category of request:
Increase student access to technology

How does this request fit in with other unit or college technology plans?
TACT Goal 1, Objectives 1.1 and 1.2
TACT Goal 2, Objectives 2.2, 2.3, 2.4, 2.5

Cost breakdown, including any unit resources being applied to the project (i.e. hardware, software, wiring, installation costs; timesheet staffing, licensing, other)

Optical Disc CD/DVD duplicator $5,469

IF FUNDING SOURCE COULD BE CARL PERKINS FUNDS, COMPLETE THE FOLLOWING:

What evidence do you have that shows special populations (disabled, economically disadvantaged, single parent, displace homemaker, academically disadvantaged and limited English proficiency) have access to your programs.
The Anatomy and Physiology discipline has tracked our student population for several years. The data from our annual program evaluation survey has indicated that 30-40% of our students could be categorized as special populations. We routinely serve approximately 275 students/year, and approximately 90-110 falls under this special population category. To help these students succeed in our programs, we attempt to offer a diverse learning environment that is enhanced greatly by exposure and access to the latest technological advancements. The extension of our learning environment with the Science Resource Room and tutoring services all work toward enhancing special population students learning environment here at Lane. The Perkins Grant awards have been instrumental in improving our learning environment for these students in the past, and we hope that this support will continue in the future.

How does this request fit in with at least two of the Carl Perkins related goals (listed separately)?

Goal #1: Student Skills Gain Goal
Improve the academic and technical skills of students participating in vocational and technical education programs by:

B. *Strengthening the academic components of such programs to enable students to meet the institution's academic requirements.*
C. *Strengthening the vocational and technical components of such programs to ensure learning in vocational and technical subjects.*

Strategy #1: Purchase an optical media duplicator to enhance teaching and learning in our educational environment
Strategy #2: Provide various curriculum components to students on CD/DVD.

Goal #2: Special Populations Student Results Goal:

Strategy #1: Purchase a CD/DVD Duplicator to improve special population access and exposure to advanced technological applications for learning in the sciences.

Describe how this project might show collaboration with Lane County high schools.

Strategy #1: Optical media may provide a way to share information with high schools, in such a way that information may be transferred easily.

Other Information
The duplicator will be used by all other science disciplines.

Science Division Priority 8 **3. PERKINS**

PERKINS Priority 1 (Co-apply to technology portion to TACT – TACT priority 4)

How do you propose improving future performance?

Science Support for Family and Health Careers Needs Initiative:

- *Why do it?* Housed within the Science Division are several courses that support Lane's Family and Health Career programs (BI112, CH112 and BI213-234). As the demand for Family and Health Career programs has increased dramatically over the last few years, so has the number of classes we offer and students we serve (~250 students/year in 2000-2001, ~375 in 2003-2004). The increase in classes has put additional demands upon our program. This initiative, by addressing both the technological and laboratory needs of our program, will help us maintain the quality of our offerings and continue to provide student access to materials outside of the classroom.
- *What will the product of the initiative be?* Computer equipment and laboratory materials to both update and expand materials used to support student learning.
- What is the need or intended use*?* Funding from Carl Perkins for the 2003-2004 year allowed us to purchase half of a classroom set of computers and a projection system to update the oldest system we had. We are seeking additional funds to complete our set of computers and a projection system to replace our now oldest projection system. This system, housed in our Microbiology/BI112 classroom has an older, low resolution and dim LCD projector that is becoming very unreliable (a Sharp NB2 800 x 600 resolution). In addition we are requesting funds to add needed equipment to our microbiology labs (antibiotic dispensers to address the important issue of antibiotic action and resistance) and our anatomy labs (anatomical models that will enhance our current collection and provide for access outside of class time).
- *Is it feasible*? Completion and implementation of this initiative is feasible if the resources are available.
- *What would be the campus location of this request/project?* Within the rooms of the Science division, main campus, which specifically serve students within the above listed courses.
- *How many students (per year) will benefit?* During the current 2003-2004 year we are offering 15 sections of our prerequisites for BI2321 (BI112/Ch112 taken as a learning community) will an enrollment of at least 375 students. Approximately 350 of these students enter our Bi231 classes.
- *How will students benefit?* Our discipline uses many computer-enhanced ancillaries, laboratory equipment and anatomical models to enhance learning and understanding of the often complex curriculum presented within our classes. This proposal, by addressing needs to update our computer equipment (computers/ projection system) and acquire laboratory materials, will contribute to our ability to address various learning modalities in our classes. In addition purchase of models specifically for the science resource room will allow students access outside of class time.

Describe the resources needed

Technology Resources:

- $ 7,000 to purchase 5 computers ($1,400 each with cd/dvd drive capability, monitor and software) to complete the classroom set in our Anatomy and Physiology classroom #2
- $5750 to purchase a 1024 x 768 resolution LCD projector ($4,350) and a projector-dedicated computer ($1,400) to replace the older unreliable projection system in our Microbiology/Bi112 classroom
- $350 to purchase wireless keyboards ($175 each) to use with the requested projection system computer and the one purchased with our Perkins 2003-2004 award
- $1500 for installation of the requested projection system

Laboratory Resources:

- $350 to purchase 2 antibiotic disk dispensers (Sensi-Disc Dispensors from Carolina Biologicals at $175 each) to use in all of our sections of microbiology (10 sections offered this year)
- $3273 to purchase the following anatomical models:
- $260 for "stomach wall model" from Holt Anatomicals (for science resource room)
- $350 for "ovary model" from SOMSO (for science resource room)
- $564 for 2 ($282 each) Denoyer-Geppert "Joint quartet models" (one for science resource room)
- $189 for Denoyer-Geppert "premier arm skeleton with labeled attachments"
- $198 for Denoyer-Geppert "premier leg skeleton with labeled attachments"
- $490 for 2 ($245 each) "median section female pelvis" model (one for science resource room)
- $656 for 2 ($328 each) "median section of the male pelvis" model (one for science resource room)
- $566 for 2 ($283 each) "frontal section of the female pelvis model" (one for science resource room)

- List the possible funding sources
  - *Can this project be partially funded?* Since the requested funds are for different items, partial funding would allow us to purchase our priority items first.
  - *If so, what minimum cost?* Our priorities in order are:
    (1) computers to complete our classroom set ($7000) and a projection system (computer and projector; $5750) with installation ($1500)
    (2) models # 1 -3 ($1174)
    (3) antibiotic dispensers ($350)
    (4) wireless remote mouse/keyboards for projection systems ($350)
    (5) models 4-5 ($387)
    (6) models 6-8 ($856 for one each)
    (7) second set of models 6-8 ($856)

- Provide ORG & PROG codes: 691110 111000

- How does this project articulate with the colleges vision, mission & goals and contribute towards meeting the President's/Board's approved goals?

The equipment requested by this initiative will provide students within our program an accessible quality learning environment that will enhance their learning and promote their success as they continue within our Family and Health Career Programs. This will have a positive impact on our community as our students become graduates of our Family and Health Career Programs and begin providing necessary health care to our community.

Request for TACT Funds to support this initiative:

- Category of Request:
  - *Maintain existing technology:* upgrade of old Sharp NB2 800 x 600 resolution projection system with a 1024 x 768 resolution LCD projector
  - *Increase student access to technology:* complete classroom set of computers and projector-dedicated computers with computers capable of handling current software and graphic files

- How does this request fit in with other unit or college technology plans?

This request is aligned with college technology plans and unit plans in that is seeks to maximize student access to technology by having computers capable of handling laboratory simulations and other interactive CD roms available to students within the learning environment. In addition, by addressing our projection system needs it enhances delivery of material for students. Furthermore it reflects the vision of technology as a long-term investment rather than a one-time cost.

- Cost breakdown, including any unit resources being applied to the project?
  - no direct unit resources are being applied to this project other than staffing hours to install the computers if the request is filled
  - $7,000 to purchase 5 computers ($1,400 each with cd/dvd drive capability, monitor and software) to complete the classroom set in our Anatomy and Physiology classroom #2
  - $5750 to purchase a projector ($4350) and a projector-dedicated computer ($1,400) to replace the older unreliable system in our Microbiology/Bi112 classroom
  - $350 to purchase wireless keyboards ($175 each) to use with the requested projection system computer and the one purchased with our Perkins 2003-2004 award
  - $1500 for installation of the projection system

Request for Carl Perkin's Funds to support this initiative:

- What evidence do you have that shows special population (disabled, economically disadvantages, single parent, displaced homemaker, academically disadvantages and limited English proficiency) have access to your programs?

The Anatomy and Physiology discipline has tracked our student population via annual program evaluations for several years. The data collected from these surveys has indicated that 30-40% of our students could be categorized into one of the above special population categories. If we serve 375 students as anticipated next year, we would expect 112-150 of these students to fall within the special population category.

- How does this request fit in with at least two of the Carl Perkins related goals?

This request pertains to the following two Carl Perkins related goals:

Goal #1: Student Skills Gain Result

The teaching methodologies used within our discipline rely heavily upon computer-enhanced presentations and computer-driven laboratory exercises. With Carl Perkins funds awarded this academic year (2003-2004) we have begun upgrading our current equipment. Funding of this initiative will allow up to complete our needed upgrades. The upgraded computers and presentation systems are needed to allow new software and cd-rom animations to be presented within our classrooms and laboratory-simulation experiments to be conducted by the students. Much of our older equipment is not compatible with the new software and advanced technology that is currently available for our students. The upgrading of the equipment will enhance our students' academic preparation and their understanding of the technical/vocational applications of the course material.

Goal # 2: Special Population Student Results

To help students within the special population groups designated by Carl Perkins succeed in our program, we offer a diverse learning environment that incorporates lecture presentations, interactive computer animations of complex physiological interactions, laboratory computer-simulations as well as traditional slides and dissections and anatomical models for manipulation and learning of anatomy. Access outside of class time to both computers and anatomical models is critical for student success. Perkin Grant awards in the past have been instrumental in providing this necessary piece of our learning environment. However, with the addition of more classes to our program, it is essential to have duplicates of all of our anatomical models designated as science resource room only. Funding of this initiative will allow us to complete our duplicate collection to be housed in the Science Resource room and also extend our model collection to cover structures we currently do not have.

- Describe how this project might show collaboration with Lane County high schools.

None is anticipated at this time.

Curriculum Development

Science Division Priority 3 **Curriculum Development Priority 1**

"How do you propose improving future performance?"

Engineering Graphics ENGR 115 Curriculum Development

- Why do it?. This course languished for several years after the retirement of the principal instructor, and has not been taught at all for three years. The course is a critical portion of the engineering curriculum, and its loss has not served ENGR students at all.
- What will the product of this initiative be? Complete redevelopment of the course using modern technologies, pedagogies, and creation of new student outcomes.
- What is the need or intended use? To fulfill Lane's obligation to provide the first two years of engineering curricula, per articulation agreements with OSU and UO.
- Is it feasible? Absolutely. The expertise is present on campus and the course can be taught using existing computer facilities and software.
- What would be the campus location of this request/project? Science and/or Advanced Technology
- How many students (per year) will benefit? 30
- How will students benefit? Students will be provided a course that serves as a critical introduction to the graphical tools needed for success in their chosen profession.

- Describe the resources needed. 100 hours of curriculum development pay plus OPE for full time instructor. Total cost = $3888.41

- List the possible funding sources. Curriculum development fund
  - Can this project be partially funded? Incomplete funding will not produce a quality course considering the depth of revision necessary. However, the commitment of instructors in the engineering program is so high that a partially funded project is preferable to no funding at all.
  - If so, what minimum cost? 80 hours of funding would cost $3110.72

- Provide ORG & PROG codes 691700 111000

- How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?

This course is a critical element of the engineering program, a lower division college transfer program; students completing the course proceed to OSU or some other university granting a degree in any of the many focus areas in the engineering field. Students earn excellent wages in challenging careers and have excellent job prospects. Many students in the program find the coursework highly accessible, and are from low income households, are returning students, or are retraining. The program provides training in a quickly advancing profession

and must be innovative in both pedagogy and content. Students are frequently placed in coop learning environments in partnership with community businesses. Graduates of the program are well placed financially and may serve as a potential pool of donors.

Science Division Priority 5 **Curriculum Development Priority 2**

Environmental Science Course Packet Development Proposal

- **Describe Initiative**
  This proposal is to develop three course packets, one for each of LCC's Environmental Science offerings (GS 171, 172, and 173). Each course packet will be tailored to specifically relate to the lecture and lab curriculum.

  - **Why do it?**
    As determined during academic years 2002/03 and 2003/04, standard Environmental Science textbooks and lab manuals are not organized in a fashion that meets the instructional needs for GS 171, 172, and 173. GS 171, 172, and 173 are currently taught as stand-alone courses. This format calls for a tailored course packet that directly relates to the curriculum, rather than a comprehensive textbook that includes numerous unrelated chapter topics. Such a course packet would improve the clarity and effectiveness of reading assignments, and would replace the text book for the courses.

  - **What will the product of this initiative be?**
    The product will be three course packets, one for each of the Environmental Science classes offered by LCC (GS 171, 172, and 173). Course packets may include original material, material from a variety of texts, as well as articles from relevant journals and books.

  - **What is the need or intended use?**
    Assigned readings are an important component of most science classes, in particular multidisciplinary subject matter such as environmental science. Reading assignments for GS 171, 172, and 173 using standard textbooks tend to be fragmented due to the inapplicability of many chapters. In addition, some material is not covered in the textbooks at all and must be supplemented using other sources. It is not practical for students to buy all of the books that contain the material needed. Course packets will reduce confusion and improve continuity and correspondence with lecture topics and lab activities.

  - **Is it feasible?**
    The development of tailored course packets for GS 171, 172, and 173 could be accomplished during Summer 2004 in preparation for the 2004/05 academic year. Staff will need to research appropriate materials to include in the course packet, including specific chapters or sections from textbooks, technical literature, and journals. Most textbook companies will allow reproduction of their materials in course packets for a fee that can be included in the cost of the course packet.

  - **What would be the campus location of this request/project?**

The course packets would be developed and used within the Earth and Environmental Sciences (EES) discipline (formerly Geology), in the Science Division of the main LCC campus.

- **How many students (per year) will benefit?**
  Approximately 180 to 200 students per year will benefit from the new course packets (the equivalent of six Environmental Science courses taught during the academic year and three courses taught during the summer).

- **How will students benefit?**
  Course packets will be organized to correspond with the order and content of lecture and lab topics. This will enhance student understanding of reading assignments. In addition, course packet materials will be selected to enhance the retention of subject matter and to promote critical thinking. Also, course packets will likely cost significantly less than textbooks because the material will be specifically related to the curriculum.

- **Who will do it and when?**
  Course packets will be developed by Jacqueline Fern with input from Sarah Ulerick, Claudia Owen, and Mary Baxter during Summer 2004.

➢ **Describe the resources needed**
  100 hours of curriculum development pay $3482 S/OPE

➢ **List the possible funding sources**
Curriculum development funding is considered the most appropriate source of money for this project.

- **Can this project be partially funded?**
  If partially funded, staff could focus on developing a course packet for one or two of the Environmental Science classes, instead of all three.

- **If so, what minimum cost?**
  Funding to prepare a course packet for one Environmental Science course would be one-third of the total cost for preparing all three tailored course packets. $1144 (S/OPE)

➢ Provide ORG & PROG codes691500 111000

➢ **How does this project articulate with the college's vision, mission & goals and contribute**
toward meeting the President's/Board's approved goals?
Course packets designed specifically to meet the needs of GS 171, 172, and 173 will ***optimize student success*** and ***enhance the instructional delivery*** of the Environmental Science curriculum by improving the clarity and applicability of reading assignments. In addition, these tailored course packets will have a ***positive***

impact on instructors who teach one or all of the Environmental Science courses. The development of individualized course packets for GS 171, 172, and 173 also presents an opportunity to address ***issues of difference, power, and privilege*** through the selection of readings on topics such as environmental justice and global population growth.

Science Division Priority 7 **Curriculum Development Priority 3**

Feasibility Study for Geographic Information Systems (GIS) Technician Training Program

- Describe Initiative

We propose exploring the feasibility of developing a multi-level GIS Technician Training Program, providing initial training and ongoing training in GIS technologies. This initiative is for a one-year feasibility study to:

- determine local and statewide demand for GIS technicians
- determine the skills that employers want GIS technicians to have
- determine resources needed to develop a professional-technical degree program in GIS
    - determine resources needed to develop special applications courses for transfer students and/or working professionals in GIS
    - outline a curriculum for an AAS degree in GIS
    - explore articulating GIS courses with university programs in Oregon that teach GIS
    - explore working with BWEL to develop GIS courses for professionals
    - prepare an NSF and/or Perkins grant to develop a GIS program, assuming the feasibility study is positive.

- Why do it?

Lane's interdisciplinary science programs, state of the art science teaching facilities, leadership in short and long-term job training programs, and proximity to OSU and OU uniquely position the college to take a leadership role in GIS technician and professional training in the region.

GIS skills are extremely marketable. The 2003 national survey of GIS professionals conducted by the Urban and Regional Information Systems Association (URISA) indicates that the lowest level of GIS technicians earns on average $33,604 annually; GIS specialists or coordinators reported salaries between $46,000 and $50,000 per year. These are living-wage jobs with career advancement opportunities.

GIS skills are applicable in a great number of fields, but have perhaps their greatest use in the Earth and Environmental Sciences. In Oregon, regional planning, forestry, geosciences, and bioresource engineering fields all use GIS. University courses in GIS are often reserved for upper-level students and are fully enrolled. There are few opportunities to gain entry-level skills in this emerging profession.

- What will the product of this initiative be?
  This initiative will produce a detailed feasibility study for a GIS program. If the program appears feasible, this initiative also will produce a well-designed grant proposal to start the program.

- What is the need or intended use?
  Developing a full GIS degree program and GIS courses for professionals in a large undertaking. We need to dedicate time and energy into thoughtfully planning such a program. The time requested in this initiative will allow for that.

- Is it feasible?
  We believe that a one-year feasibility study and grant preparation phase is feasible. The timetable for NSF Advanced Technological Education grant proposals is an April deadline for preliminary proposals and an October deadline for full proposals. This initiative would prepare a preliminary proposal for submission in April 2005. The Summer 2005 development request will provide time to complete the full proposal.

- What would be the campus location of this request/project?
  The study and potential grant would be based and housed in the Earth and Environmental Sciences (EES) discipline (formerly Geology) in the Science Division. This area currently teaches geology, some physical science, and an interdisciplinary environmental science series of courses.

- How many students (per year) will benefit?
  At this point, we can only guess. Fully implemented, a GIS training program could support two sections (maximum 18 students each) each term in the daytime program; at night we could serve an additional two courses, designing these around the needs of working professionals. We might also provide weekend workshop courses. I'm estimating 70 to 100 students per term, and (including summer courses), as many as 300 per year.

- How will students benefit?
  If implemented, students will receive state-of-the-art job training in a high-demand, well-paying career. Working professionals will be able to learn new applications and stay current in their skills.

- Describe the resources needed
  Extensive resources will be needed to implement a GIS training program. For the feasibility study/grant preparation initiative, curriculum development time is requested, spread over three terms:

  Fall 2004, release time $6208
  Winter 2005, release time $6208
  Summer 2005, 50 hours (S/OPE).....$1944
  Total $14,360

- List the possible funding sources

  For this planning initiative, curriculum development funds are requested. If the program is pursued, potential funding sources include TACT funds for hardware and software; a Perkins grant; NSF funding; and tuition based courses.

  - Can this project be partially funded?
    Funding a portion of the development time requested will allow us to at least begin our feasibility study, but might not result in a fully developed grant proposal.

  - If so, what minimum cost?
    one course release time and 50 hours $8152

  - Provide ORG & PROG codes 691500 111000

  - How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?

    This initiative meets numerous elements of the college's vision, mission and goals, as well as contributing to the college's strategic plan. The initiative proposes a much-needed professional-technical training program in the sciences, providing initial and ongoing career education. It provides a thoughtful, well-planned and innovative response to new technology applications. It adds new options for learning and seeks alternative funding sources to enhance student learning.

Science Division Priority 9 **Curriculum Development Priority 4**

Develop a General Geology Web Site

- Describe Initiative
  Build a Web site for students studying any General Geology course. The site will allow students to input answers for lab activities or homework and receive immediate feedback, and it will include self-tests such as practice quizzes.

  - Why do it?
    In this project we can explore new assessment techniques and provide student with more immediate and thorough feedback than can be supplied by more conventional evaluation. Students benefit from more practice to help them learn course material. A Web site available to General Geology students could help many students at once, reinforcing the material they learn in class, and can be useful to a number of instructors.

  - What will the product of this initiative be?
    A Web site for all General Geology students.

  - What is the need or intended use?
    This Web site would be used in any General Geology classes to assist students in checking their answers to lab activities. Students who want more practice learning the material could use the site. It could also be used in classes as part of lab activities and even for testing. Students could practice, check answers from home, or do homework assignments on the Web site.

  - Is it feasible?
    The program WebCT is already supported on campus for this type of Web site. Geology classrooms have computers with Internet access. Earth and Environmental Sciences (EES) discipline (formerly Geology) already has faculty members who are experienced in using WebCT and other Web site and quiz-building software.

  - What would be the campus location of this request/project?
    EES discipline, Science Division, main campus

  - How many students (per year) will benefit?
    All General Geology students would benefit, which is commonly more than 400 students a year.

  - How will students benefit?
    Students will benefit because they will receive instantaneous evaluation of their answers for lab activities, practice quizzes and tests. They will also have the opportunity to practice the material they learn from home or outside of class time.

- Who and when?
  Claudia Owen, Summer 2004 or Fall 2004

- Describe the resources needed
  100 hours of curriculum development pay $3432 (S/OPE)

- List the possible funding sources
  Curriculum development

  - Can this project be partially funded?
    Yes, this project can be funded at any level. The greater the funding is the more useful and extensive the Web site will be.

  - If so, what minimum cost?
    40 hours of curriculum development pay $1373 (S/OPE)

  - Provide ORG & PROG codes 691500 111000

  - How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?

This project will enhance learning by providing opportunities for students to practice and reinforce what they learn in General Geology classes. The instant assessment of lab activities and practice quizzes can help students learn more thoroughly and effectively. For evening and online courses use of the materials generated by this project will increase accessibility to students who have difficulty coming on campus.

Setting up a WebCT Web Site for General Geology classes increases student access and use of existing technology. It also increases students access to course material outside of normal class time and Science Resource Center hours. Finally it allows us to explore new assessment techniques.

Science Division Priority 11 **Curriculum Development Priority 5**

How do you propose improving future performance?

Curriculum Development Need For Development of Online BI 233

- *Why do it?* The goal of this initiative is to better meet the scheduling needs of students we serve in the Anatomy and Physiology discipline.
- *What will the product of the initiative be?* The product of this proposal will be the development and offering of an "hybrid"online BI233 Human Anatomy and Physiology 3. This class will meets only once/week in the classroom for laboratory sessions.
- *What is the need or intended use?* This course is the 3rd and last course in the Anatomy and Physiology sequence offered by the Science division to support Lane's Family and Health Career Programs. In fall term many students within this course are concurrently enrolled in LCC's Nursing Program. For many of these students it is very difficult for them to fit 6 hours/week in Anatomy and Physiology along their nursing classes and clinicals. Furthermore, to fit their clinical schedule we need to offer classes at times such as 3:00-6:00 p.m., or 4:00-7:00 p.m, or 6:00-9:00 p.m. twice a week. These times are not optimal for student learning. This proposed alternate format class will significantly reduce the on-campus time commitment thereby serving the scheduling needs of our students.
- *Is it feasible*? Joe Russin and Shelley Gaudia in the Science Department have been successfully offering "hybrid style" classes for a few years and they have been successful. In addition by the time student enter Anatomy and Physiology 3 they have already completed 2 terms of the sequence and with support of online technology and scheduled lab/discussion sections they should be successful in such a course. As an added benefit this class would free up classroom space which is at a premium during fall term.
- *What would be the campus location of this request/project?* The ultimate product will be housed on the WebCT server and available either at home to students or via the science resource room or community learning centers at their convenience. The classroom component would be within the Science division, main campus.
- *How many students (per year) will benefit?* Initially only one or two sections (25-50 students) would be offered but if successful such a class could be a model for others within the Anatomy and Physiology/Microbiology sequence.
- *How will students benefit?* Student will benefit by the flexibility an online format offers.

- Describe the resources needed:
  - This initiative requires a one class reassignment time fall term 2004 for Kathleen Morrison-Graham to develop and implement the class at a cost of $6000 for salary and OPE.

- List the possible funding sources:
  - Although not as efficient as being able to develop and trouble shoot the class as it is being offered, this project could be partially funded by providing curriculum development pay during summer 2004 for 100 hours at a rate of $25.94/hour.

- Provide ORG & PROG codes: 691110 111000

- How does this project articulate with the colleges vision, mission & goals and contribute towards meeting the President's/Board's approved goals?

This project targets the core value of accessibility and learning. By allowing students the option of an online course format that fits their schedule while still providing the necessary laboratory time to foster hands on learning and student-student learning, this project creates a quality learning environment.

Science Division Priority 13 **Curriculum Development Priorities 6, 7, 8, 9**

"How do you propose improving future performance?"

Earth and Environmental Sciences New Course Development

- Describe Initiative
  Earth and Environmental Sciences (formerly Geology) proposes to develop a number of new courses in the following priority order:
  - Geology of the National Parks
  - Survey of Pacific Northwest Geology
  - G103 with emphasis on Vertebrate Evolution
  - Natural Disasters

- Why do it?
  The present Geology curriculum is fairly limited and does not extend a wide range of choices to students. Offering new courses provides students with expanded variety that may better catch or pique their interest and thereby aid their learning.

  Geology of the National Parks is an exiting way to teach beginning level geology to students who need a science requirement. Members of the general public will also find such a class valuable as a way to enhance their experiences of the natural world especially when traveling through national parks. This sort of class provides a valuable community service.

  Teaching *Survey of Pacific Northwest Geology* allows us to impart geological knowledge in a way that is very relevant to our region. It would take advantage of vast local resources of learning materials in the form of local rocks, local plate tectonics, local field trip destinations. By focusing on the Pacific Northwest, students can become more involved and excited because they can see the geology around them.

  A course in *Vertebrate Evolution* would be of interest to students in both physical and life sciences, other students who may have a science requirement and an interest in life of the past, and to community members who wish to know more about the development of life through time.

  A course in *Natural Disasters* can capture students' imaginations while at the same time exposing them to important scientific concepts. The subject can draw peoples' interest and get them involved in science in ways that are exciting but may also improve their future decision making in dealing with geologic and meteorologic hazards.

- What will the product of this initiative be?
  Courses in
  - Geology of the National Parks
  - Survey of Pacific Northwest Geology
  - G103 (Historical Geology) with emphasis on Vertebrate Evolution
  - Natural Disasters

- What is the need or intended use?
  Current geology offerings are quite restricted with many repetitions of standard classes such as General Geology G101, G102, and G103. These new courses will provide variety and more choices for students interested in geology.

- Is it feasible?
  Most Geology classes at LCC are full to overflowing, which means that additional sections are likely to be filled. In some cases, repetitions of present curriculum can be replaced by new courses.
  University of Oregon offers *Geology of the National Parks*, which attracts a number of students. This fall's enrollment was 29 students and this winter's course was full with a cap of 20 students.
  The University of Oregon offers classes that have emphasized the fossil record, vertebrate evolution, mass extinctions, and paleoclimatology, but so far has not offered a comprehensive, interdisciplinary class that melds these subjects with plate tectonics, paleogeography and asteroid/meteorite impacts as in the proposed course on *Vertebrate Evolution*. A course like this can have broad appeal to students and the community.
  Survey of Pacific Northwest Geology is not offered at University of Oregon but a higher level course there, *Geology of Oregon and the Pacific Northwest*, had Fall enrollment of 77 students and this winter's course was filled, with a cap of 15 students.
  Natural Disasters should also be a class with general appeal and community interest.

- What would be the campus location of this request/project?
  Earth and Environmental Sciences (EES) discipline (formerly Geology), Science Division, main campus

- How many students (per year) will benefit?
  Eventually if all four courses are taught once a year about 100 students would benefit each year. Alternatively, about 50 students a year would benefit if 2 new courses were offered in any one year.

- How will students benefit?
  Students who need a science requirement will benefit by having more choices. Students who wish to travel to national parks will see a tremendous increase in their appreciation of the experience by being more aware of the geology around them after taking *Geology of the National Parks*. Students and community

members who wish to learn more about the history of life on Earth will find *Vertebrate Evolution* and interesting and challenging course. The primary benefits of *Survey of Pacific Northwest Geology* are to offer wider variety, to teach students about their local environment and to impart geologic knowledge at the same time. A *Natural Disasters* course benefits students because every member of society needs to understand the causes and consequences of natural disasters so disasters can be avoided, mitigated or survived.

- Describe the resources needed

  100 hours of curriculum development for *Geology of the National Parks*
  Andrea Rice and Claudia Owen.....$2594
  100 hours of curriculum development for *Vertebrate Evolution*
  Mary Baxter $2594
  Acquisition of specimens(M&S budget) $1000
  100 hours of curriculum development for *Survey of Pacific Northwest Geology*
  .....$2594
  100 hours of curriculum development for *Natural Disasters*$2594
  OPE $3352

  TOTAL $14,727

  List the possible funding sources. General fund, curriculum development.
  - Can this project be partially funded?
    Yes, any one or more courses could be funded without funding the other courses.
  - If so, what minimum cost?
    The minimum cost would be 100 hours of curriculum development funds for one course. ($3431 in S/OPE; add $1000 in supplies for Vertebrate Evolution).

- Provide ORG & PROG codes 691500 111000

- How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?
  By providing more diverse Geology courses we recognize the unique needs of different students. Students will have more learning options that appeal to their interests. This project will provide more varied learning opportunities for lower division college transfer students. It will provide enhancement of lifelong personal development for members of the community as a community service. This is especially true for those who plan to travel to national parks or around the Pacific Northwest, or who want to learn about the development of life on Earth, or who need to understand natural disasters. These courses can impart a better appreciation of life and the often-fragile ecosystems and natural resources of our modern world and will also promote responsible stewardship of these natural systems.