Science Division Unit Plan 2005-2006

P R E F A C E

The Science Division is a collection of disciplines that function independently and collaboratively to create and sustain a viable learning environment for our students. Our unit plan priorities reflect three overarching values that we share: sustainability, innovation and putting learning first. All three values are evident in our initiatives for additional faculty and support staff. Sustaining a high quality science program requires that faculty have time for innovations and to sustain existing courses and facilities; nearly every discipline in the Division is understaffed for full-time faculty and support personnel. Sustaining a high quality science program also requires that we maintain and improve our technology infrastructure; therefore, we have requested funding for support staff, for updated computers, and for technology enhancements in our classrooms. Our commitment to innovation is evidenced by our technology initiatives and numerous thoughtful curriculum development proposals.

Members of the Science Division have given considerable thought to setting priorities for initiatives in our unit plan. We have listed our priorities in tiers; the lists are in alphabetical order and no significance should be placed on position within tiers. Items in the top tier are equally important to all disciplines in the Division. We cannot assert that one discipline's needs are any more or less important than another's. Priority tiers are listed for initiatives within each funding category. Should questions arise regarding the priority tiers, we are willing to assist the deliberative process whenever necessary.

Science Division Unit Plan 2005-2006
Program Analysis for Anatomy & Physiology Discipline

1. What did your unit accomplish last year in relationship to the annual planning initiatives?

The Anatomy and Physiology Discipline submitted four initiatives in Chapter Four of our 04-05 unit plan. Below is a list of those initiatives and their status.

Investigate changing some or all of the BI 231-234 classes from 4 credits to 5 credits Initiative:
The product of this initiative was to be a recommendation to either change *some of all* of our course credits from 4 to 5 credits or to leave them at 4 credits. This work has extended past the original scope of the initiative due to the changes occurring in the LCC Nursing Program as they transition into a nursing consortium member. Conversations regarding both the impact of changing our classes from 4-5 credits and the possible need to add new curriculum to our classes in order to for LCC nursing students to meet consortium requirements are ongoing. We are on schedule to submit a proposal to the science division and to the curriculum committee before the end of this academic year.

Development of Anatomy and Physiology Specific Materials: Mentoring Manual and Standardized Laboratory Manual Initiative:
The proposed product of this initiative is a mentoring manual for adjunct faculty and laboratory Manuals for our Bi231-234 classes. Completion of this initiative requires curriculum development and/ reassignment time. We received limited hours of curriculum development from the Science Division (money from tuition-based classes) last year to begin work on the laboratory manuals (20 hours for Bi231 and 20 hours for Bi234). The revised Bi234 laboratory manual will be implemented winter term and additional work on the A&P manuals will continue this year by utilizing additional Science Division tuition-based funds. We plan on beginning work on the mentoring manual Spring term as one of us is currently scheduled for a partial course release to work on this project.

Development of an On-line BI 233 Course Initiative:
The product of this initiative would be a hybrid on-line Bi233 class. This format was conceived as a way to meet the needs of students in their first term of the nursing program. Due to the recent changes in the point system for admission into LCC's nursing program, students are completing their A&P sequence prior to beginning the program thus reducing the demands for such a class at the current time. Although there is still a population of students who would benefit from needing to be on campus for 3 hours vs 6 hours per week (and it would alleviate classroom space demands), ***lack of funding for this initiative has left its status unchanged.***

Educational Support for Future and Current Family and Health Career Students Initiative:
The anatomy and physiology unit requested Perkins funds in the amount of $13,048.85 to purchase a variety of laboratory materials, support text books and models to support student learning. This initiative was funded in full and the materials are currently in the process of being ordered. We plan on having all items purchased by the end of fall term with implementation winter term.

Other accomplishments not related to the annual planning initiatives?
The Anatomy and Physiology discipline have added sections to meet student demand. We have also been involved in state wide conversations on prerequisites for A&P and offered (along with biology faculty) a workshop (funded by the governors office) attended by faculty from 11 different community colleges.

2. What are the areas that still need attention?

There is clear need for the development of curriculum to support the 4-5 credit conversion of our classes. It is equally clear that the curriculum needs to be aligned with and fully support the outcomes for A&P developed at the state level. This is dependent upon our continued work on our specific course content and skill objectives that will be part of our mentoring manual. Progress in these areas is critically dependent upon "faculty time". It is becoming increasingly evident that our ratio of full-time to part-time faculty does not adequately support our ability to do such critical work. Two of our three full-time faculty have had to do overloads to meet class demands and as we have increased the number of sections offered by part-time faculty our mentoring and coordination load has increased.

Lastly, as our student population grows we need support for our students in the form of tutoring in the science resource center, models for in and out of class use, staff to prepare the labs associated with our added sections, computer support as we utilize current computers more heavily and finally the funds to equip (computer, projection systems etc) our three classrooms the same to ensure all of the students in our program have equivalent access to technology.

3. Considering your responses to question 1 & 2 and emerging needs and demands, what are your plans for next year? This conclusion should be the foundation on which initiatives are built.

Next year we will focus on revising/enhancing our curriculum to meet emerging student needs, purchase models/laboratory equipment to meet the needs of our curriculum and replace the "aged" equipment in our classrooms so that they all function to best meet student learning. This work, to be sustained, requires the addition of a full-time faculty member.

Science Division Unit Plan 2005-2006
Program Analysis for Biology Discipline

1. What did your unit accomplish last year in relationship to the annual planning initiatives? Other accomplishments not related to the annual planning initiatives?

TACT funded our technology initiative. We are installing smart boards in several classrooms. The wireless hub is awaiting clarification of what is being done campus-wide with respect to this technology.
We have made various small changes in BioBonds, especially administration, with partial funding from other sources.

Development of the proposed "Evolution" course curriculum was begun, but has not moved ahead because of a lack of funding.

None of our other initiatives were funded through the unit planning process.

The Animal Behavior course was developed through partial funding from the division and a considerable amount of voluntary work.

2. What are the areas that still need attention?

The low full-time to part-time faculty ratio continues to hamper our ability to provide the best possible learning experience for our students. Our part-timers are of the highest quality, but administrative work continues to be a burden on the small number of full-timers. In addition the high rate of turn-over among part-timers requires constant mentoring, and weakens our sense of continuity, community and academy.

Biobonds continues to struggle with the need for serious redevelopment. While it has been a great success in terms of preparing students for the A & P program, it is a new learning community and is still experiencing growing pains that won't go away until its further development is thoroughly funded.

The evolution course remains a good, but unrealized idea.

Funding for important new technologies, like GPS units, are needed to take full advantage of the GIS-centered exercises being worked into a number of courses.

Resources like the native landscape project, the greenhouse and the wet lab, while of value to the entire college, continue to drain our local funds.

3. Considering your responses to questions 1 & 2 and emerging needs and demands, what are your plans for next year? This conclusion should be the foundation on which initiatives are built.

It is difficult to plan when funding for even the most important initiatives is not forth-coming. We will continue to try to spread the administrative load as evenly as possible, in the hope that we will soon welcome at least one new full-time instructor. We will continue to try to improve Biobonds and the Animal Behavior course. We will be incorporating new GIS-based exercises into a number of courses. We hope to be able to offer new "emphasis" courses to our students so that they can learn biological fundamentals through the medium of an area of special interest. Assuming the support personnel will be available, we will expand the use of technology in our classes and add innovative new labs and other exercises.

Science Division Unit Plan 2005-2006
Program Analysis for Chemistry Discipline

1. **What did your unit accomplish last year in relationship to the annual planning initiatives? Other accomplishments not related to the annual planning initiatives?**

   Nothing, we had no initiatives funded.

   The chemistry discipline did develop and offer a new course, CH110 Chemistry in Everyday Life. Gary Mort is teaching this course this fall term (2005). John Thompson also made revisions to the Organic Chemistry series. Both of these curriculum development accomplishments were made without curriculum development funding (and in fact no funding was requested).

2. **What are the areas that still need attention?**

   All the same ones from last year plus two more. Please see our initiatives for details; it would be redundant to discuss them here.

3. **Considering your responses to questions 1 & 2 and emerging needs and demands, what are your plans for next year? This conclusion should be the foundation on which initiatives are built.**

   We are planning on resubmitting our initiatives from last year as well as adding two more curriculum development requests. Our top priority for curriculum development funding is for major revisions to labs and course materials for CH105 and 106, Introductory Organic and Biochemistry. Our second priority is funding for the development of a forensic chemistry class. Both of these new requests will help the chemistry discipline meet two goals outlined in the Science Division's Strategic Plan: goal 8: to meet existing demand for classes and goal 9: to expand learning opportunities.

Science Division Unit Plan 2005-2006
Program Analysis for Earth & Environmental Sciences

1. What did your unit accomplish last year in relationship to the annual planning initiatives? Other accomplishments not related to the annual planning initiatives?

Earth and Environmental Sciences identified the following needs in 2004-05:

- EES needs at least one more full-time faculty member to support its existing curriculum and allow for growth.
- EES needs to move forward swiftly to develop a GIS curriculum that expands learning opportunities in Science and Social Science.
- EES needs to expand learning opportunities by adding a new sequence of topical geology courses.
- EES needs to add capability to its new website.
- EES needs ongoing stockroom support.
- EES needs updated computers in both its lab/classrooms.

Our 2004-05 annual planning laid out an ambitious agenda for the Earth and Environmental Sciences (EES) discipline. Based on that plan, **EES provided leadership in completing an NSF ATE grant requesting $649,502 for GIS curriculum**, working with faculty leaders in Social Science and CIT. This work was supported by curriculum development funds awarded by OISS. The work also involved other full-time and part-time faculty in Biology, EES, Geography, and CIT.

EES dedicated 50 hours of curriculum funding from its own 05-06 tuition-based resources to develop two new courses, an unfunded request from last year's plan. Part-time faculty members developing the courses are likely to contribute far more hours than they are being paid. The courses will go to the curriculum committee this fall, and we plan to offer them Spring, 2006. We are requesting curriculum funding for developing two additional courses identified last year.

Significant time, again **funded by our own resources**, was applied to **developing a web site for EES in 04-05**. This work was undone when the college implemented a new template design. As a result, once more EES is without a web presence. Web support within Science is inadequate (voluntary overload work by one faculty) to develop an inviting and informative web site. Sarah Ulerick, sole full-time faculty in EES, lacks the skills and time to build a web site. This work is a continuing need, and we once again will request support through the initiative process.

Finally, **EES continues to support 34 sections of geology and environmental science courses each year with only one full-time faculty**. We are requesting a full-time faculty position or administrative assistance from part-time faculty.

For 2004-05, several initiatives were proposed; only one was funded. The charts below summarize progress on our 04-05 initiatives in a format we found useful last year.

Initiative Request 04-05	**Expand Learning Opportunities in Science and Social Science: Implement a Geographic Information Systems (GIS) Curriculum for Transfer Students and Technicians**
Resources awarded	150 curriculum hours from 03-04 plus 100 curriculum hours from 04-05; jointly awarded to EES and Geography
Alternative resources used	Plus significant time put in by all participants beyond the awarded hours.
Goals met and unmet	The resources enabled us to produce a preliminary grant proposal to the NSF ATE program last spring and a full proposal completed Oct. 18, 2005. As part of the development process, we supported six faculty (in Science, Social Science and CIT) in developing outlines for embedded GIS modules that can be implemented when the technical infrastructure is available. The three-year

	grant for $649,502 calls for developing modules in 16 courses over three years, reaching as many as 30 class sections (700 students) per term; and developing a three-course GIS sequence teaching basic concepts and skills. We will hear if our grant is funded sometime in July.
Resources still needed	We are awaiting word on our grant. If the grant is not funded, we will pursue college resources to continue this important initiative.

Initiative Request 04-05	**Support Quality Instruction and Growth in Earth and Environmental Science: Hire a full-time faculty member for EES**
Resources awarded	*NONE*
Alternative resources possible	Tuition-based course revenues if combined and reallocated for the Division could support a new faculty position.
Resources still needed	See our 05-06 initiative request.

Initiative Request 04-05	**EES Web Site**
Resources awarded	*NONE*
Alternative resources used	Tuition-based course revenues allocated as curriculum development funds. In 03-04, 25 hours. In 04-05, 35 hours. For 05-06, only 5 – 10 hours are allotted because we are funding our own curriculum development.
Goals met and unmet	A new EES Web site was available for online browsers and was much improved over the previous version. However, the college developed a new template so our previous work has been taken off the site. Unmet goals are: Redesign our web pages. Add faculty web pages and course-specific links and materials. Maintain and update the web site to provide students and other interested people up to date information about EES courses and faculty.
Resources still needed	Faculty time and/or tech-support

Initiative Request 04-05	**EES new courses: Introduction to Pacific Northwest Geology, Natural Disasters, and Geology of the National Parks**
Resources awarded	*NONE*
Alternative resources used	Tuition-based course revenues allocated as curriculum development funds. In 05-06, we have allotted 20 hours to David Blackwell to develop National Parks Geology. We have allotted 30 hours to Claudia Owen to develop an additional new course, Rocks and Minerals. Both faculty will contribute many more hours unpaid to these endeavors.
Goals met and unmet	Provide expanded course options for students in EES.
Resources still needed	Curriculum development, especially for lab activities.

Other accomplishments that EES completed in 2004-05:

Gained approval for remodeling to complete work initially requested in the Bond project. Our number one priority in the Bond project was to sound-proof the wall between our two classrooms. This work was dropped without our input during the construction process. In order to move this forward, we have dedicated $2000 from our M&S funds. The work will also include adding new lighting to Rm 140. The work was scheduled for summer of 05, but postponed as work crews were needed elsewhere. We are promised the work will be done over Christmas break.

Requested and received new student chairs for both classrooms. This was an outgrowth of exploring options for the room upgrades. Again, EES was overlooked for this improvement during the Bond. The old chairs (molded plastic from the 70's) were broken, ugly, dirty and uncomfortable for students.

Developed and ran three multi-class fieldtrips enabling more students to experience geology in the field, and providing team-teaching experiences for faculty. The lack of access to vans and the restrictions on who can drive a van have made fieldtrips very difficult for individual faculty to run. Part-time faculty took leadership in designing and leading the trips with modest financial support from the EES curriculum funds. We are continuing this pattern in 05-06.

Using our tuition-based curriculum funds we supported fieldtrips, **developed improved testing methods for one of our telecourses, developed our web site (that needs to be redone!), and developed labs for environmental science**.

Spring term, Sarah took on an **overload assignment to work on the college Assessment Project** with Sonya Christian and Mary Brau. This work provided 40 hours overload pay for Claudia Owen to handle **EES administrative work** freeing up Sarah's time.

Conducted a three-day fieldtrip to John Day for geology majors. Students researched and developed field presentations about the geology. Sarah Ulerick, Claudia Owen and Mary Baxter accompanied the students.

For the Geology 200 series, **UO geology faculty Greg Retallack and Gene Humphreys gave guest lectures**, which made a big impression academically on the students.

In part as a result of the guest visits, students asked for an **Advanced Seminar in Geology**, to continue their studies. Sarah proposed and got approval for this small class format and is teaching it successfully this fall.

2. What are the areas that still need attention?

All of the initiatives from 04-05 that were unfunded continue to be high priority needs for EES. These include:

- Addition of a full-time faculty to support sustainability curriculum.
- Administrative assistance.
- Web presence.
- Expanded course offerings.

In addition, we should have requested replacement of outdated classroom computers in 16/140, 16/142 and 16/130. The need is even greater for new technology this year. We have requested replacement computers from the Student Technology Fee.

3. Considering your responses to questions 1 & 2 and emerging needs and demands, what are your plans for next year? This conclusion should be the foundation on which initiatives are built.

Three college initiatives external to EES are creating additional challenges and opportunities for the EES discipline.

1. **Encouraging students to take necessary Math courses sooner in their tenure at Lane.** This recommendation led to EES instituting a Mth 52 or better pre-requisite for the 05-06 academic year, and, as a result, our summer and fall enrollments fell by over half. Courses at prime times this fall have only 8 or 9 students. This dramatic crash led to a problem-solving session with staff from counseling and advising, and math, along with other science faculty. The entire Science division will be involved in

05-06 in assessing the math requirements of our courses and determining appropriate prerequisites. While this work falls mostly to full-time faculty, the effects on enrollments are most felt by part-time faculty, who may have classes cut if enrollments are too low. Balancing the needs of students to take science classes, plus move forward in Math (when entry skills are evidently very low) challenges us all.

2. **Moving the college forward in developing a culture of assessment.** Sarah Ulerick is the 05-06 chair of the Transitional Assessment Team, receiving release time of one course per term. Allowing her this opportunity highlights the challenges of a "one full-time faculty" program.

3. **Emerging involvement with the college Sustainability Initiative**. EES teaches a three-term multi-disciplinary sequence in Environmental Science. In recent years, the courses have been taught by part-time faculty with backgrounds in environmental science and geology. EES could and should have a leadership role in creating sustainability curriculum and developing learning communities that involve our courses. We are limited by the lack of a full-time faculty member dedicated to developing our Environmental Science curriculum.

Based on our analysis of program needs and emerging challenges, we conclude:

- EES needs at least one more full-time faculty member to support its existing curriculum and allow for growth; or some support for administrative functions of the growing discipline.
- EES needs to continue to lead in developing embedded GIS modules that expand learning opportunities in Science and Social Science.
- EES needs updated computers in both its lab/classrooms and the adjacent Science computer lab, to provide current technology for student use and to enable GIS activities in the classrooms.
- EES faculty can and should be leaders in assessment and sustainability efforts.
- EES needs to expand learning opportunities by adding more new topical geology courses.
- EES needs to restore its website and continue to add capability to it.

Science Division Unit Plan 2005-2006
Program Analysis for Physics

1. **What did your unit accomplish last year in relationship to the annual planning initiatives? Other accomplishments not related to the annual planning initiatives?**

   General Fund Initiatives:
   Physics requested and justified the addition of two new faculty members. No faculty members were added. To meet some of the immediate needs, Physics proposed re-purposing money for the temporary contract position. This was not supported.

   Curriculum Development Initiatives:
   Physics identified 1800 hours in curriculum development work needed by the physics discipline, 200 hours of which made it into upper division priorities. No funding was provided. The re-purposing proposal would have addressed many curriculum development needs, but was not supported.

   TACT initiatives:
   Physics requested specific information technology, none of which was provided.

   Separate initiatives:
   Physics used the unit planning process to provide guidance to its activity, and made progress in a few areas.

2. **What are the areas that still need attention?**

   Essentially, all the needs for staff, curriculum development, and technology identified remain, though some improvements, on a relatively small scale, were made through existing funds and volunteered and donated efforts.

3. **Considering your responses to questions 1 & 2 and emerging needs and demands, what are your plans for next year? This conclusion should be the foundation on which initiatives are built.**

   Physics plans to pursue all of the staffing, curriculum development, and technology needs (old and new) through all possible avenues. These needs and their justification are reflected in the division's requests. In addition, the physics experience adds evidence for the need to re-examine whether the promised aims of unit planning are actually being realized.

Science Division Unit Plan 2005-2006
General Fund Initiative

Section I: Planning

1. Initiative Title: Full-time Faculty in Anatomy & Physiology Discipline

Division Priority Tier #1

New Faculty to Sustain & Improve Instruction to Meet Student Learning Needs in Anatomy and Physiology

2. How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?

This initiative addresses the extreme need of the Anatomy/Physiology Discipline Unit (APDU) to hire another full-time faculty member for our program. Our program currently has 3 full-time, contracted faculty members who teach Anatomy and Physiology courses (BI 231-233), Microbiology (BI 234), and BI 112 of the BioBonds prerequisite course. Most of our students who complete our program directly enroll in the Family and Health Careers Professional Technical Programs here at Lane. We teach approximately 69 sections of these courses each year, and only 43% of these courses are taught by full-time contracted faculty. The addition of a new faculty member would increase the number of courses taught by full-time faculty to 57%, still far below acceptable levels, but moving toward better continuity for our students. Many of our program outcomes from last year have not been completed this year due to the one main factor, lack of staffing in our discipline. Current faculty members invest so much time in hiring part-time faculty, mentoring, administrative duties related to scheduling, and generally organizing our program with so many courses and new faculty, we did not have the time or resources to complete a thorough analysis and implementation of many requested initiatives from last year (nor were many funded). Additionally, for the past two years, we have needed to hire 2 temporary full-time faculty members to meet the growing needs and demands of our program. Still our full time faculty have needed to do overloads in order to staff all of our classes.

This initiative will move our program toward a substantially full-time faculty, reducing our continual reliance on our temporary full-time and part-time faculty in this program. This initiative promotes both innovation and teaching effectiveness as current faculty will have more time to devote to teaching innovations and student success as their administrative duties should decrease with this new hire. Additionally, the current faculty in the APDU can be more collaborative with other programs on campus, work within our shared governance structure, and generally be more committed to other college duties as our current workload adjusts with this new faculty member.

In summary, addition of a full-time position in the APDU will have an immense impact on our students and the quality of our program. Without this new position, we will stay afloat but will have little time or resources to make modifications or improvements that are vital to our curriculum and eventual student success in our Family and Health Careers Programs. Additionally, our reliance on temporary full-time faculty in our program will have a negative impact on morale and teaching effectiveness in our program if this trend continues in the following academic years.

3. Describe the initiative

This initiative will fund one full-time faculty position in the APDU of the Science Division. This new faculty member would coordinate the BioBonds pre-requisite, teach BI 112, and the BI 231-234 courses in our program. The specific description of this position must be determined in collaboration with the Biology discipline and the Science Division as a whole.

Section II: Linking Planning to Budgeting – If you need Resources:

4. Describe the resources needed

Resources needed for this initiative would include funds and support for one full-time instructor on a recurring basis, minus the costs of an equivalent amount of part-time instruction. Assuming the new full time faculty member started at Level 3, Step 6, and that the replaced part-time instruction was at the same level and step, the cost would be:

Level 3, Step 6, full-time ➔ $51,015, salary + OPE @ .538, $27,446 = ... $78,461
Minus Level 3, Step 6, part-time ➔ $38,664, salary + OPE @ .402, $15,543 = ... $54,207
$24,254

As one contracted instructor replaces two or more part-time instructors, office space, equipment and technology can be provided from existing resources within the Division.

5. List the possible funding sources

Payroll with OPE has no other funding source other than general fund monies.
Office, equipment and technology can be provided from existing resources within the Division.

6. Provide ORG & PROG codes

ORG = 691110, PROG = 111000

7. For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?

N/A

Science Division Unit Plan 2005-2006
General Fund Initiative

Section I: Planning

1. **Initiative Title:** Full-time Faculty, Biology Discipline Division Priority Tier #1

New Faculty to Sustain & Improve Instruction to Meet Student Learning Needs in Biology

2. How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?

The challenge that this initiative addresses is created by the high proportion of Biology sections taught by instructors not contracted in Biology. Our part-time instructors are of the highest quality, yet the low contracted/part-time ratio causes increased work for support staff, increased demand on materials and facilities, less unified and somewhat less professional teaching of Biology, and more time spent by contracted faculty in mentoring part-time faculty and engaging in administrative duties.

The Biology Discipline consists of six contracted faculty, and there is always at least one who is either on sabbatical or has at least one course release time for various other college business. This fall 2005, we offer 34 regularly scheduled sections of Biology, and only 14 of them are taught by contracted Biology faculty.

Science has added a new program in the BioBonds learning community to serve as an innovative and effective preparation for students desiring to enter Anatomy and Physiology. For the year 2004-05, BioBonds adds at least 16 sections of Cell Biology for Health Occupations, BI 112. Much of this student load was previously borne by CH 104 and now feeds into both BI 112 and CH 112. And the success rate among students entering A&P is markedly higher. However, one of the full-time contracted faculty members in biology now teaches several sections of Bi 112 and acts as a mentor for the many part-timers that teach most of the sections. As a result, the full-time faculty teaches even fewer of the general biology sections. In addition, we have increased our offerings of non-majors Biology sections by adding sections of the popular Marine Biology classes and offering new general biology with emphasis courses.

In summary, addition of a full-time position in the Biology Discipline will have an immense impact and is long overdue.

3. Describe the initiative

- *How does this initiative align with the strategic directions of the college?*
  This initiative will fund one full-time faculty position in the Biology Discipline of the Science Division. This position will allow the Biology Discipline to continue to offer an excellent array of courses, improve coordination of part-time instruction and take responsibility for Survey of Biology and other programs. The specific description of this position must be determined in collaboration within the Science Division.

  This initiative enhances the learning and success of students in Biology classes by enhancing teaching effectiveness over-all. It promotes innovation by supporting creativity among a cohesive and motivated discipline with facility for creative collaboration and reinforcement. It promotes a greater sense of community, collaboration and partnership through meaningful participation in shared governance. It promotes responsible stewardship of resources and public trust through more unified oversight.

- *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
  It is widely recognized that the over-use of part-time faculty has a detrimental effect on learning. Even adding just one more full-time faculty member can greatly enhance the learning environment in our discipline.

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
  As noted above, the need is clear. The full-time faculty is stretched far too thinly over the many sections of the various biology courses we offer. The frequent turn-over among part-timers requires constant mentoring of new faculty and it is clear we are not doing as good a job in that area as we could. The current full-time faculty spends ever-increasing amounts of time engaging in non-academic work, as a result of which learning suffers. An additional full-time member of our faculty could share the administrative load, reducing this problem.

- *Given college resource is it feasible? Is it an efficient use of college resources?*
  We do not believe that there are any initiatives that would have a stronger and more immediate positive impact on student learning. The cost is minimal when one considers that the cost associated with part-time faculty will be reduced by the equivalent of at least two part-time teachers. We also have experienced a variety of "hidden" costs that result from people who are unfamiliar with our policies and procedures (*e. g.* doors left unlocked, computers left on over night, etc.).

- *What would be the campus location of this request/project?*
  The full-time faculty member would work in the Science Division, Building 16.

- *How many students (per year) will benefit?*
  Full-time faculty members transform the lives of approximately 270 students in a year.

- *How will students benefit?*
  While our part-timer faculty is greatly valued and appreciated for their hard work and teaching effectiveness, we cannot overlook the fact that most of these people spend a considerable amount of time looking for full-time positions. Full-time faculty members bring a deeper commitment, a greater sense of continuity, a stronger understanding of Lane Community College and a more personal sense of community to their classrooms. The members of our full-time faculty have been subjected to a rigorous hiring policy, which provides greater assurance that each is a "good" fit for the college and the discipline.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

Resources needed for this initiative would include funds and support for one full-time instructor on a recurring basis, minus the costs of an equivalent amount of part-time instruction. Assuming the new full time faculty member started at (the highest possible) Level 3, Step 6, and that the replaced part-time instruction was at the same level and step, the cost would be:

	Level 3, Step 6, full-time ➔ $51,015, salary + OPE @ .538, $27,446 =	$78,461
Minus	Level 3, Step 6, part-time ➔ $38,664, salary + OPE @ .402, $15,543 =	$54,207
		$24,254

As one contracted instructor replaces two or more part-time instructors, office space, equipment and technology can be provided from existing resources within the Division.

5. List the possible funding sources

Payroll with OPE has no funding source other than the general fund.
Office, equipment and technology can be provided from existing resources within the Division.

- *Can this project be partially funded?* No

6. **Provide ORG & PROG codes**
   ORG = 691120, PROG = 111000

7. **No Advisory Committee**

Science Division Unit Plan 2005-2006
General Fund Initiative

Section I: Planning

1. **Initiative Title:** Full-time Faculty, Earth & Environmental Sciences Discipline

Division Priority Tier #1

New Faculty to Sustain & Improve Instruction to Meet Student Learning Needs in Earth and Environmental Sciences

2. How is the initiative linked to your Program Outcomes Analysis for 2004-2005?

This initiative meets the challenge of supporting quality instruction and continued growth in the EES Discipline. The program has maintained a core of course offerings over the past six years and has added nine sections of geology and restored six sections of environmental science each year. In essence, we have added the course equivalent to a full-time position.

The workload demands of the current program are too much for one faculty member to support. Further, EES can and should provide leadership to the college-wide initiatives for assessment and sustainability. Both efforts will be strengthened by adding a full-time faculty member.

3. Describe the initiative

Aligns with strategic directions of the college

The college is moving forward in developing a value of sustainability in its physical operations and curriculum. EES is home to the environmental science course sequence, and related geology courses. EES faculty support the principles of sustainability and could take a far more active role in shaping Lane's response to the curricular challenges, if we had the time.

This initiative meets numerous ongoing elements of the college's vision, mission and goals, as well as contributing to the college's strategic plan. Notably, this initiative moves the Science Division forward in transforming students' lives and transforming the learning environment in EES. Our ability to respond creatively to the demands of our curriculum is limited by time and energy. This initiative will:

- develop and expand the learning experiences available to students
- support creativity, experimentation and institutional transformation
- allow us to foster personal, professional, and intellectual growth of learners
- develop and expand systems for assessing learning
- create a diverse and inclusive learning college
- create, enhance and maintain our facilities and classrooms
- promote professional growth and development opportunities for our faculty
- make significant progress in meeting the goals of a learning-centered college
- promote responsible stewardship of natural systems

Product, innovation or change proposed

The product of this initiative will be hiring a full-time faculty member to teach environmental science and geology, and to participate in the college's emerging sustainability initiatives. The hiring will take place in 06-07.

Need for initiative, evidence for need

The Earth and Environmental Science Discipline includes courses in geology, environmental science, and physical science, including telecourses. Since the 99-00 academic year, we responded to financial cut-backs by reducing our courses to as few as 20 sections in 01-02 and then rebuilding the program using tuition-based courses extensively, with a cadre of excellent, enthusiastic part-time instructors. This year we are teaching 35 sections, including an advanced seminar in geology (G299). This spring

we will teach two new courses developed by part-time faculty. Our full-time faculty member has release time for college leadership on the Transitional Assessment Team. As a result, EES hired one more part-time faculty, bringing our ratio of part-time to full-time faculty to 8 to 1. Numbers of courses in the chart below do not include summer classes.

	Total sections	Geology	Environmental Science	Other EES courses	Tuition-based
2005-06	35 sections	25 sections	6 sections	4 sections	10
2004-05	34 sections	24 sections	6 sections	4 sections	8
2003-04	32 sections	24 sections	6 sections	2 sections	17
2002-03	28 sections	21 sections	3 sections	4 sections	17
2001-02	20 sections	16 sections	0 sections	4 sections	1 extra
2000-01	23 sections	15 sections	3 sections	5 sections	
1999-00	25 sections	15 sections	6 sections	4 sections	

We have capped our growth at this level because we cannot manage more demand on our resources with only one full-time faculty member. As noted in our Program Analysis, EES wants to add a GIS component to the curriculum along with two additional new courses. The extremely high PT:FT ratio limits our leadership potential in reaching the college's vision for a sustainability curriculum.

Managing growth and innovation within EES with only one full-time faculty member is extremely challenging. Contributing to college-wide innovation and emerging directions with only one full-time faculty member is extremely challenging. EES serves a valuable role in the Science Division and the college as a whole and should be supported with additional faculty positions. This is long overdue.

Feasibility
The tuition-based course revenues currently earned by the Science Division could cover all or part of one new faculty position. The general fund also budgets funds for personnel.

Campus location of this request/project
EES discipline, Science Division, main campus

Number of students (per year) who will benefit
All Earth and Environmental Science students and the entire Science Division will benefit. EES serves about 900 students each year. The Science Division taught 256 FTE in Fall 04 and 241 FTE in Fall 05.

How students will benefit
Students will benefit by:

- increased access to mentoring and learning experiences (from both full-time faculty)
- strengthened curricula
- greater consistency in course curricula
- better resources for learning (since the workload of maintaining our teaching materials will be shared)
- more options in choosing courses and instructors
- more creative responses to instructional problems
- improved management of teaching materials and the learning environment
- greater innovation and leadership from the EES faculty, including new GIS curriculum, sustainability themes, and program assessment

Section II: Linking Planning to Budgeting

4. Describe the resources needed

Resources needed for this initiative would include funds and support for one full-time instructor on a recurring basis, minus the costs of an equivalent amount of part-time instruction. Assuming the new full time faculty member started at Level 3, Step 6, and that the replaced part-time instruction was at the same level and step, the cost would be:

	Level 3, Step 6, full-time ➔ $51,015, salary + OPE @ .538, $27,446 = ...	$78,461
Minus	Level 3, Step 6, part-time ➔ $38,664, salary + OPE @ .402, $15,543 = ...	$54,207
		$24,254

As one contracted instructor replaces two or more part-time instructors

5. List the possible funding sources

General fund, personnel

If not fully funded as a full-time faculty position, some of the goals of this initiative could be met by assigning a part-time faculty member as an administrative assistant for the discipline. This strategy is proposed as a separate initiative for EES. Cost estimates range from $9,063 (maximum support) to $4,932 (minimum level of support).

6. Provide ORG & PROG codes

ORG = 691500 and PROG = 111000

7. No advisory committee.

Science Division Unit Plan 2005-2006
General Fund Initiative

Section I: Planning

1. Initiative Title: Administrative & Web-site Assistant, Earth & Environmental Science Discipline

Division Priority Tier #1

Administrative and web site assistance for EES

2. How is the initiative linked to your Program Outcomes Analysis for 2004-2005?

This initiative meets the challenge of managing growth and innovation, and supporting leadership activities in a discipline with one full-time faculty and a PT:FT ratio of 8 to 1. Administrative and web site activities that could be assumed or supported by a part-time faculty assistant include:

- Planning and facilitating EES discipline meetings
- Maintaining open communications within the EES faculty
- Planning EES fieldtrips (multi-class trips each term)
- Working on annual scheduling and catalog to meet critical deadlines
- Assisting with new course development and curriculum approval process
- Marketing EES courses
- Assessing EES activities and program outcomes
- Overseeing work-study students or other workers in maintaining EES stockroom
- Completing and maintaining the EES website

3. Describe the initiative

Aligns with strategic directions of the college

This initiative meets numerous ongoing elements of the college's vision, mission and goals, as well as contributing to the college's strategic plan. Notably, this initiative moves the Science Division forward in transforming students' lives and transforming the learning environment in EES. Our ability to respond creatively to the demands of our curriculum is limited by time and energy. This initiative will:

- develop and expand systems for assessing learning
- create, enhance and maintain our facilities and classrooms
- promote professional growth and development opportunities for our faculty
- make progress in meeting the goals of a learning-centered college
- support faculty in moving instructional materials onto the Internet and into other electronic formats

Product, innovation or change proposed

The product of this initiative will be a part-time faculty member with a paid responsibility for administrative and web site assistance for EES.

Need for initiative, evidence for need

The Earth and Environmental Science Discipline includes courses in geology, environmental science, and physical science, including telecourses. Since the 99-00 academic year, we responded to financial cut-backs by reducing our courses to as few as 20 sections in 01-02 and then rebuilding the program using tuition-based courses extensively, with a cadre of excellent, enthusiastic part-time instructors. This year we are teaching 35 sections, including an advanced seminar in geology (G299). This spring we will teach two new courses developed by part-time faculty. Our full-time faculty member has release time for college leadership on the Transitional Assessment Team. As a result, EES hired one more part-time faculty, bring our ratio of part-time to full-time faculty to 8 to 1. Numbers of courses in the chart below do not include summer classes.

	Total sections	Geology	Environmental Science	Other EES courses	Tuition-based
2005-06	35 sections	25 sections	6 sections	4 sections	10
2004-05	34 sections	24 sections	6 sections	4 sections	8
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2002-03	28 sections	21 sections	3 sections	4 sections	17
2001-02	20 sections	16 sections	0 sections	4 sections	1 extra
2000-01	23 sections	15 sections	3 sections	5 sections	
1999-00	25 sections	15 sections	6 sections	4 sections	

We have capped our growth at this level because we cannot manage more demand on our resources with only one full-time faculty member. As noted in our Program Analysis, EES wants to add a GIS component to the curriculum along with two additional new courses. The extremely high PT:FT ratio limits our leadership potential in reaching the college's vision for a sustainability curriculum.

The best solution to this problem is hiring a full-time faculty member. However, significant gains will be achieved by having some of the administrative load of the discipline shared with a part-time faculty who is appropriately compensated for this work.

Feasibility
EES experimented with this idea in Spring 2005. Sarah Ulerick had release time to work on the college assessment project. As part of this arrangement, Claudia Owen completed 40 hours of administrative work for the discipline. This arrangement ensured that EES met critical deadlines within Science, and supported new initiatives and ongoing work in the discipline.

Campus location of this request/project
EES discipline, Science Division, main campus

Number of students (per year) who will benefit
All EES students would benefit, which is about 900 students a year.

How students will benefit
Students will benefit by:

- strengthened curricula
- better resources for learning (since the workload of maintaining our teaching materials will be shared)
- more creative responses to instructional problems, because the full-time faculty will be less stressed
- improved management of teaching materials and the learning environment
- greater innovation and leadership from the EES faculty, including new GIS curriculum, sustainability themes, and program assessment
- new and improved and maintained web site

Section II: Linking Planning to Budgeting

4. Describe the resources needed

We are requesting 60 hours of hourly pay per term (180 hours total) for the part-time faculty member at 100% of their current hourly rate.

5. List the possible funding sources

General fund, personnel

Figured at 180 hrs, hourly pay rate: 180 hrs X $29.32 (L3,S6) = $5,278 Salary, $2,122 OPE @ .402 = $7,400

Funding a portion of this initiative will enable us to meet some but not all of our goals for this initiative. The minimum feasible amount would be 40 hours of hourly pay per term, for 120 hours over the academic year.

120 hrs X $29.32 (L3,S6) = $3,518 Salary, $1,414 OPE @ .402 = $4,932

6. Provide ORG & PROG codes

ORG = 691500 and PROG 111000

7. No advisory committee.

Science Division Unit Plan 2005-2006
General Fund Initiative

Section I: Planning

1. **Initiative Title: Full-time Faculty, Physics Discipline** **Division Priority Tier #1**

   New Faculty to Sustain & Improve Instruction to Meet Student Learning Needs in Physics

2. **How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?**

In that last unit plan, it was concluded that the lack of sufficient regular faculty positions created the lack of capacity or conditions for the following:

- Carrying out regular comprehensive data gathering and analysis of the effectiveness of the discipline as a whole and each of its sub-disciplines in relation to program outcomes;
- Regularly formulating a complete set of needed actions based on program outcomes and existing data and analysis to improve the physics learning environment in the discipline as a whole and in each sub-discipline;
- Providing from expected minimum curriculum development of regular faculty much of the curriculum development needed by the discipline to keep current;
- In some sub-discipline areas, attending to serving female students in comparable proportions to male students;
- Fully incorporating established, research-validated pedagogical reforms into the physics learning environment;
- Optimally aligning physics offerings with OUS schools, professional-technical programs, mathematics courses, and other science and humanities classes (including articulation of our general physics curriculum, alignment of Math 52 with 100-level and pre-100 level classes that require it as a pre-requisite, aligning PH 211,2,3 with math pre- and co-requisites, and activating learning communities with classes in the humanities);
- Developing needed classes (involving expansion in each sub-discipline as described in Chapter 3 of the last Unit Plan);
- Working at a level that is sustainable in terms of health and satisfaction;
- Creating a supportive extra-curricular environment for physics students (including a sustained physics club, comparable to clubs in chemistry and biology);
- Making the best use of resources available;
- Catching up with a backlog of essential infrastructure work;
- Having a working environment that supports the best work of faculty in the discipline;
- Ensuring students do not “fall through the cracks” for preventable reasons by the discipline;
- Regular discipline-wide discussion and implementation of pedagogical, curriculum, and resource planning;
- Carrying out regular, comprehensive data gathering on student learning in the discipline;
- Making and executing plans to fully equip rooms to make optimum use of existing facilities;
- Making full use of existing technology currently available;
- Having awareness of the full range of options for funding improvements;
- Having full awareness of current equipment options for curricular improvements;
- Applying for grants that are relatively assured;
- Making and following through on long-range plans for grant-funded projects to enhance the physics learning environment;
- Establishing and maintaining regular collective curriculum development to make best use of the intelligence in the discipline;
- Regularly rotating teaching assignments to refresh the instruction and faculty, and to provide more opportunity for collective curriculum development;
- Catching up on a backlog of needed curriculum development;
- Providing physics offerings in the summer and evenings;

- Participating in regular, sustained partnerships with professional-technical, mathematics, humanities faculty at Lane and outside Lane, resulting in, among other things, a number of learning communities in numbers comparable to biology and chemistry;
- Having a working environment that need not produce burn-out;
- Having adequate support and advocacy from the division (in some ways this is a catch-22 situation in which too few physics faculty cannot get the support, which in turn perpetuates too few faculty members);
- Having a long-term plan for the stability of the Engineering program;
- Having adequate representation in division governance (a matter automatically resolved with more physics discipline faculty members); and
- Having a physics discipline capable of fully playing a leading role in the division in those areas where physics could be expected to lead (including incorporation of modeling, mathematics, and calculation; restructuring curriculum more appropriately to the physics-chemistry-biology approach; technology emphasis in courses; sharing the physics education experience of positive radical reform, particularly dealing with student misconceptions);

The expected outcome is that the capacity for all of the above, in the long run, if not immediately, will be created because:

1. There will be sufficient faculty members to effectively deal with many of the challenges directly.
2. There will be sufficient faculty members to deal with the remaining challenges, though other resources are also needed to fully meet these challenges.
3. The commitment to this initiative will provide the incentive for existing faculty members to persist in making improvements at a level that is not otherwise sustainable.

3. Describe the initiative

- *How does this initiative align with the strategic directions of the college?*

This initiative fits with the college's vision, mission and variety of college-wide goals in a number of ways, the main ones of which are highlighted below:

College Vision: Transforming lives through learning
The education provided by a community college is a gateway to many possible futures. Basic physics courses are part of the foundational study for all science majors, for understanding much of modern technology, and for scientific literacy in a time that democratic decision-making requires it. Physics courses play a key role in the transformation of people we aim for in college. This initiative can allow more than a minority of students needing physics courses to take them at Lane.

Physics education plays a particularly strong role in the formation of higher order thinking skills, because successful physics learning requires fundamentally changing one's deeply held misconceptions about the way the world works. Within the last fifteen years physics education research has led to radical improvements in physics education, which allow the vast majority students (rather than the traditional 10%) to learn basic physics concepts and have a positive, self-aware experience of fundamentally changing their minds. This initiative will allow such reforms to be fully and comprehensively implemented and maintained at Lane.

College Mission: Lane is a learning-centered community college that provides affordable, quality, lifelong educational opportunities that include(s): *Professional technical and lower division college transfer programs*
This initiative allows the accomplishment of this goal primarily by providing more learning opportunities of a consistently high quality to meet more of the learning needs of Lane students.

Lane's Core Values
The initiative supports and is aligned with all of Lane's core values. Those directly and most decisively engaged by implementation of this initiative are:

Learning

- Working together to create a learning-centered environment
- Recognize and respect the unique needs and potential of each learner

- Foster a culture of achievement in a caring community

Diversity

- Cultivate a respectful, inclusive and accessible working and learning environment

Innovation

- Support creativity, experimentation, and institutional transformation
- Respond to environmental, technological and demographic changes
- Anticipate and respond to internal and external challenges in a timely manner
- Act courageously, deliberately and systematically in relation to change

Collaboration and Partnership

- Encourage and expand partnerships with organizations and groups in our community

Integrity

- Promote responsible stewardship of resources and public trust

Accessibility

- Strategically grow learning opportunities

Strategic Directions

The initiative supports and is aligned with all of Lane's strategic directions. Those directly and most decisively engaged by implementation of this initiative are:

Transforming Students' Lives

- Foster the personal, professional, and intellectual growth of learners by providing exemplary and innovative teaching and learning experiences and student support services.
- Commit to a culture of assessment of programs, services and learning.
- Position Lane as a vital community partner by empowering a learning workforce in a changing economy.

Transforming the Learning Environment

- 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.

Transforming the College Organization

- Achieve and sustain fiscal stability.
- Build organizational capacity and systems to support student success and effective operations.
- Promote professional growth and provide increased development opportunities for staff both within and outside the College.

- *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*

  Two new regular physics positions

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*

  The need is summarized in the above list of the lack of capacity due to the lack of these positions. The assessment of this need and the evidence for it was gathered during the last unit planning process:

  In general, to analyze effectiveness, we looked at

  - the needs of students and how much of their needs we have met,
  - the level of incorporation of established means for improving meeting student needs,
  - the performance in class of students and their feedback to us,
  - how well our courses work with other courses and other parts of the college, and
  - how time and energy of staff was used toward the above.

There is not sufficient number of full-time faculty members in the discipline to have regular comprehensive analysis, so that the data is necessarily incomplete but adequate to reach the conclusion about the need for two additional physics faculty members. Specific sources of information include:

- identification of science students needing physics courses and the rate at which they take physics,
- investigation of the times students take math pre-requisites in comparison to times leaving Lane,
- complaints and praise from students,
- written feedback in journals of students,
- review of curriculum development needs and efforts,
- level of planning and level of use of available funds,
- observation of level of collective curriculum discussion,
- history of the LCC physics club,
- history of burn-out of a regular faculty member,
- actual and anticipated turn-over of part-time faculty members in the discipline,
- observation of use of pedagogical tools,
- level of adequacy of equipment and rooms and plans for improvement,
- level of equipment purchase/replacement planning,
- workload required to keep up,
- comparison of LCC physics courses with other LCC and externally articulated courses,
- comparison of LCC physics courses with comparable OUS physics courses,
- level of student success,
- kinds of work required to maintain and update courses to meet student needs,
- the history of active lack of support for the principles of technology courses,
- developmental evaluations of faculty,

- *Given college resources, is it feasible? Is it an efficient use of college resources?*

The initiative is an efficient use of college resources for a number of reasons:

- Given that the current level of full-time staff has proven too little to sustain a quality physics discipline, the use of college resources are not well used to meet the college mission.
- With the expected increase in the number of physics sections, more students per section can be anticipated, thus increasing the efficiency of money spent per faculty member.
- The initiative would put less of a burden on existing technology resources and make more efficient use of them in two ways. The resources would be used more fully. And less staff-time per use would be achieved.
- The initiative would allow faculty to give a higher percentage of their time to high level curriculum planning and implementation and teaching tasks related directly to improving student learning and a lower percentage of their time to "treading water" with tasks that come primarily from compensating for having insufficient full-time faculty. The initiative makes more efficient use of the time and expertise of each full-time faculty member.
- The initiative would allow full-time faculty members to standardize an effective curriculum, while allowing for individual implementations to maximize the idiosyncratic contributions of each person, placing less of a burden on part-time faculty member to unnecessarily re-create equipment configurations, labs, and curriculum. Thus the initiative makes more efficient use of the time and expertise of each part-time faculty member.
- The initiative would allow the physics discipline to be a more full and effective partner with other science disciplines, mathematics, professional-technical programs, and humanities at Lane, and also with other efforts at OUS and community college schools. The initiative thus creates more collective efficiency within the college and among college partners.
- The initiative would allow the discipline faculty to attend and learn significantly more from colleagues at conferences and through time keeping up with the current thinking about teaching in the discipline. The initiative thus results in greater efficiency through expanded utilization of external resources.
- The initiative thus results in greater efficiency through expanded utilization of grant resources. Not only are there longer-term opportunities made possible, but opportunities that easily arise could be accessed, a situation currently not feasible.
- The initiative allows more of the physics learning needs of students to be satisfied, which contributes to greater enrollments and FTE reimbursement from the state.

- The initiative creates a higher level of educational experience, which creates the case for more public support for the college.
- The initiative validates the commitment to existing staff of a quality learning environment for students, and thus inspires, or continues to inspire staff to go all out to create an exemplary educational experience for students. Failure to validate this commitment undermines the commitment of staff and thus leads to less efficient use of existing human and capital resources.

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

- *How many students (per year) will benefit?*
  Every student taking physics will benefit. Further, more students will be taking physics. Classes will be offered at times of expected demand not offered currently, particularly summer and evenings. The number, per term, currently is approximately 180 (In '04-'05, fall = 185, winter = 177, spring = 184 . Currently, physics classes are under-enrolled due primarily to lack of marketing and the fact that the discipline is complex, with many different kinds of classes and typically in one of each kind, the class is not fully enrolled. If these classes were full, the number would be 20% to 100% higher. In Spring term, when advertising did not take place, the occupancy rate dropped to about 50%. This gives an indication of the effect on efficiency of an understaffed discipline. One could in addition expect that the number of sections would increase by 50% with a core of regular staff capable of providing the leadership for physics evening and summer classes, as well as meeting the unmet needs of physics classes for science majors. The number of students benefiting in the near future per term could plausibly reach 500-700.

- *How will students benefit?*
  Students will benefit in a number of ways, including:
  - Students will find classes that have fully incorporated established, research-validated pedagogical reforms, and local ongoing data-gathering and analysis to refine and update the curriculum.
  - Much more of the physics learning needs of students majoring in science will be provided for.
  - In some sub-discipline areas significantly under-serving female students, students will benefit from the faculty's capacity to create and carry out plans aimed at serving female students in comparable proportions to male students.
  - Students will benefit from a physics faculty that has the capacity to engage in ongoing comprehensive study, analysis, and implementation of improvements in the physics learning environment aimed at serving the wide diversity of physics students.
  - Physics offerings will be optimally aligned with courses and programs at OUS schools, professional-technical programs, mathematics courses, and other science and humanities classes (including articulation of our general physics curriculum, alignment of Math 52 with 100-level and pre-100 level classes that require it as a pre-requisite, aligning PH 211,2,3 with math pre- and co-requisites, and activating learning communities with classes in the humanities).
  - Classes will be available that respond to demand that is already known (involving expansion in each sub-discipline as described in Chapter 3), so that curriculum development can focus on immediately identified needs and opportunities to provide students with a cutting edge education.
  - Faculty will have the capacity to flexibly respond to student learning needs, because they will be working at a level that is sustainable in terms of health and satisfaction.
  - There will be a supportive extra-curricular environment for physics students, including a sustained physics club.
  - Students will have the advantages that come from faculty able to make the best use of resources available.
  - Faculty can focus attention on currently identified tasks and challenges to improve the students' learning environment, because they have been able to complete up a backlog of essential infrastructure work.
  - Students will engage faculty at their best, because faculty have a work environment that supports the best work of faculty.
  - Students do not "fall through the cracks" for preventable reasons by the discipline because the discipline has the capacity to build and maintain safety nets and bridges to them.

- Students benefit from more mindful creation of their learning environment, based on discipline-wide discussion and implementation of pedagogical, curriculum, and resource planning by the physics discipline faculty.
- Classroom/lab rooms are fully equipped and optimally configured.
- The students' learning environment makes full use existing technology currently available.
- The students' learning environment, as is feasible, is up to date, because the physics faculty is aware of pedagogical options, aware of current equipment options for curricular improvements, and aware of the full range of options for funding improvements.
- The students' learning environment is cutting edge, because the physics faculty has the capacity to applying for grants that are relatively assured to disseminate new innovations, and because the physics faculty has the capacity to make and carry out long-range plans for grant-funded projects to enhance the physics learning environment.
- Students have the benefit of the collective intelligence of the physics faculty, because they have the capacity for sustained collective curriculum development to make best use of the intelligence and experience of teaching in the discipline.
- Students benefit from a continually refreshed learning environment, because the physics faculty has the capacity to regularly rotate teaching assignments to refresh the instruction and faculty, and to provide more opportunity for collective curriculum development.
- Students have physics learning opportunities of assured high quality in the summer term and in evening classes throughout the year.
- Physics students have a learning environment that is enriched by regular, sustained partnerships with professional-technical, mathematics, science, and humanities faculty at Lane and outside Lane. The expected result is not only better focused physics courses but learning communities involving physics classes.
- Students have teachers that are fully available to them and their learning because there is a regular physics faculty of a size sufficient to assure a high quality learning environment in all sub-disciplines without burn-out.
- Students in physics courses have a learning environment that has been enhanced through adequate support and advocacy from the division, because with the number of physics faculty matching Chemistry, appropriate representation in division governance is assured without hardship and there is sufficient capacity to educate the division about the needs of the physics discipline.
- Students in Engineering will benefit from the faculty having more assurance of the program's stability, and the synergy that comes from a cooperative relationship with other physics faculty members.
- All science students will benefit from having a physics discipline capable of fully playing a leading role in the division in those areas where physics could be expected to lead, including incorporation of modeling, mathematics, and calculation; restructuring curriculum more appropriately to the physics-chemistry-biology approach; and technology emphasis in courses, and the experience of successful radical curriculum reform in physics.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

The actual cost would involve an estimate of the hidden costs of the high use of part-time faculty and the hidden costs of not having the synergy of an adequately staffed physics discipline. The following is a means for estimating an upper limit on this per year cost.

This (upper limit on the) minimum long-term per year cost of partial funding is estimated by X1+X2-X3-X4-X5-X6+X7-X8, defined as below:
PLUS (X1): The salary of two contracted faculty positions.
PLUS (X2): The cost of benefits appropriate to the faculty members in this position (taking into account that the standard OPE is averaged over all employee groups).
MINUS (X3): The cost of 2FTE of part-time assignments.

MINUS(X4): The cost of benefits for 2FTE of part-time assignments (taking into account the actual eligibility of part-time faculty in assignments in the discipline).
MINUS(X5): The additional tuition and State reimbursement from classes filled closer to capacity from increased planning, marketing, and attention to student needs.
MINUS(X6): The additional grant revenue obtained from having an adequately staffed and motivated discipline.
PLUS(X7): The net cost of additional part-time assignments, coming from the future expansion of the physics program to meet student need made possible by the additional contracted positions, and the hiring of new people based on the anticipated retirement or full-time employment (here or elsewhere) of current faculty filling part-time assignments.
MINUS(X8): The tuition and State reimbursement brought in by this expansion.

The first four (X1+X2-X3-X4) have been estimated to be $48,500. The remaining part of the cost is estimated to be negative and significant, so that the $48,500 is a significant over-estimate.

5. **List the possible funding sources**
   - *Can this project be partially funded?*
     The efficiencies expected from two new positions are such that it makes little financial sense to not fund the initiative. Partial funding from the General Fund could reasonably come from the introduction of donated funding of the sort taking place at other schools.

   - *If so, what portion could be funded at what minimum cost?*
     It is, of course, possible to fund only one position, while being open to donations for the other.

6. **Provide ORG & PROG codes**

   ORG = 691600 and PROG = 111000

7. **No Advisory Committee**

Science Division Unit Plan 2005-2006
General Fund Initiative

Section I: Planning

1. **Initiative Title:** Instructional Support for Technology **Division Priority Tier #1**

   Science Instructional Support for Technology

2. **How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?**
   The initiative keeps existing instructional technological teaching methods functioning by providing necessary funds to meet the demands associated with rapid technological changes in science instruction. Program level outcomes are dependant on functional technologies related to instruction in all science disciplines.

3. **Describe the initiative**
   - *How does this initiative align with the strategic directions of the college?*
     This initiative transforms students' lives by providing student support services and it keeps the commitment to a culture of services and learning.

     It transforms the learning environment by developing 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. Support staff respond to the needs of differently abled people who need technological accommodations, which are required by the ADA. The support also enhances, and maintains facilities that are accessible, functional, well-equipped, and aesthetically appealing.

     This initiative also transforms the college organization by building organizational capacity and systems to support student success and effective operations, which then promotes professional growth. It ultimately provides increased development opportunities for staff both within and outside the College.

   - *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
     The change will be simply the conversion of two part-time Information Technology Technician positions (currently funded by the student technology fee) to two full time positions.

   - *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
     The need is to maintain the support of student computers and other forms of technology (too many to list here) used in science teaching by all science disciplines. This initiative is needed to provide personnel to run science laboratories and the Science Resource Center, which offers computer testing and computer use for science classes. These services are needed to support science classes and to retain students.

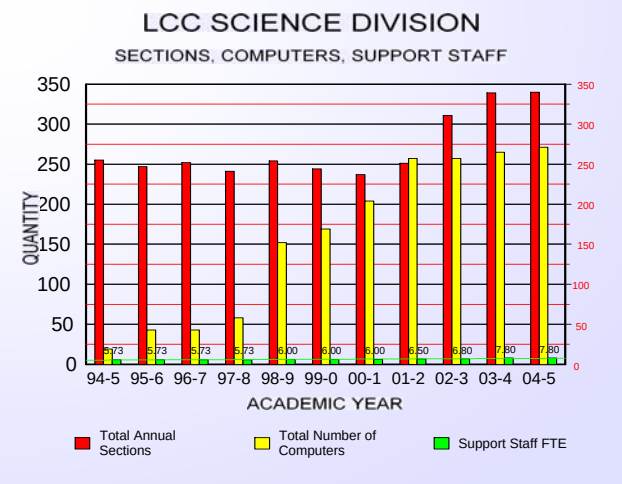
     The need is assessed by qualitative factors such as the reduction of response time to problems with instructional technology and the reduction of services. The needs may also be assessed by quantitatively looking at all the new technologies implemented, and by the addition of services offered to more students, with the same staffing.

     Evidence of the need includes the list of initiatives approved and implement, with not a trace of additions or consideration to help support these technologies. Human resources supporting these technologies have been reduced by dilution, resulting in an effort of frustrated attempts to keep up

LCC standards and meet Lane's strategy to build organizational capacity and systems to support student success and effective operations.

An analysis of data accumulated over the last decade provides additional evidence that the human resources have not been appropriately expanded at a suitable rate. Increases in total number of science sections, and the total number of computers have outpaced the ability of staff to support instruction.

The following graph shows growth in the Science Division over the last decade. The number of sections taught was steady for 8 years, with some minor adjustments. Then 3 years ago, sections increased by about 90 sections. Also, the number of computers during the same 10 years, has increased 14 times.



The Science Division technology-related support staff needs to be expanded to continue to offer services as we have in the past. Planned expansion of offerings would require even more help.

- *Given college resources, is it feasible? Is it an efficient use of college resources?*
  The project is feasible and necessary to meet science program outcomes and is an efficient use of college resources. The Science Division has been teaching up to 90 more sections a year, for the last 3 years and our need for student support has also gone up. Without these positions, the Science Resource Center could not continue to offer the range of hours we do, science laboratories would be compromised, and student retention would be lowered.

- *What would be the campus location of this request/project?*
  The project will be located within the Science and Math Divisions, Building #16, main campus.

- *How many students (per year) will benefit?*
  Last year we had about 6,000 students, however we now serve approximately 8000 students in all Science classes. There are approximately 340 sections per year.

- *How will students benefit?*
  Students will benefit by having an Information Technology Specialists directly helping students in the Science Resource Center (SCI 193) and also in 17 science labs where computers are used. The students will also benefit by having support for the 2004-05 and 2005-06 initiatives yet to be implemented.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

Resources needed for this initiative would include funds and support for two full-time Information Technology Specialists on a recurring basis. Two half-time positions have been funded by the Student Technology Fee. Moving the funding source to General Fund will release funds to support more Student Technology Fee projects.

Two 1.0 FTE Information Technology Specialists, Level A, Step 2

Currently funded as two part-time Info Tech Specialists
30,411 x .50 = $15,206 Salary and $6,113 OPE @ .402, Total = $21,319 x 2 = $42,638

Request additional .50 FTE funding for 2 positions
(Note: *because each position would be full-time, the OPE rate changes*)
30,411 Salary, $16,361 OPE @ .538, $46,772 x 2 = $93,544 minus $42,638, **Total = $50,906**

5. List the possible funding sources

- The project may be funded by the general fund.
- The project may be partially funded, provided that any reduction of the requested amount be distributed equally between the two proposed positions.

If the funding source is Carl Perkins:
N/A

6. Provide ORG & PROG codes

ORG = 691800, PROG = 111000

7. For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?

N/A

Science Division Unit Plan 2005-2006
General Fund Initiative

Section I: Planning

1. Initiative Title: Life Science Lab Support **Division Priority Tier #1**

Life Science Laboratory Instructional Support

2. How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?

Both the Anatomy & Physiology and the Life Science Disciplines express the lack of adequate support services, including lab preparation and maintenance of facilities. This lack of adequate support relates directly to the Life Science Instructional Support position. The Anatomy & Physiology Discipline has seen an **increase** in number of sections and students served by 25% in the last three years, but the college has **decreased** their support for the Life Science area by 33% in the last two years from 1.5 full time positions to 1.0.

Returning college support to the former level (1.5 full time positions) will allow the Life Sciences to maintain the level of service it had two years ago. Additional support is needed to address the 25% increase in the number of class sections (both in A&P and in biology), increase in the reliance on part-time faculty, and the increase in the number of students served.

3. Describe the initiative

- *How does this initiative align with the strategic directions of the college?*
  This initiative aligns with all of the strategic directions of the college, by supporting innovative teaching and learning experiences, maintaining facilities that are safe, functional, well-equipped and environmentally sound, and in building organizational capacity to support student success and effective operations.

- *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
  The product of this initiative is to first maintain adequate support of instruction and maintenance of equipment and facilities, which has not been provided for the last two years.

  In addition, this initiative will provide support for the additional class sections, and support for the Wetlab, native landscape project and specimen collection. These areas are currently underutilized because of a lack of needed support.

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
  The need is for College support of a .75 ft Life Science Instructional Specialist position. While the number of class sections, students served and use of part-time faculty has increased, the college support for life science instructional support has decreased in the last two years.

- *Given college resources, is it feasible? Is it an efficient use of college resources?*
  The Science Division in general and the Life Science Discipline in particular is a growing area of the college. It makes perfect sense to provide the resources to this area, which is helping the college to meet its goal to grow enrollment by 4%.

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

- *How many students (per year) will benefit?*
  The Life Science Instructional Support position provides laboratory support for approximately 150 class sections per year, providing services to about 3600 students.

- *How will students benefit?*
  Students will benefit by having the necessary equipment, materials, and expertise available to provide them with hands-on science learning experiences. Without the Instructional Support position, student learning will suffer.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

Resources needed for this initiative would include funds and support for Instructional Specialist position on a recurring basis. Currently a .499 position is supported by the division using tuition based funds that are sorely needed for other division activities.

At Level 8, Step 2; $27,500 x .499 = $13,723 Salary, $5,517 OPE @ .402 = $19,240

One of the following:
Instructional Specialist, 1.00 FTE, $27,500 Salary, $14,795 OPE @ .538, Total $42,295 – $19,240 = ***$23,055***
Or
Instructional Specialist, 0.75 FTE, $20,625 Salary, $11,096 OPE @ .538, Total $31,721 – $19,240 = *$12,481*
Or
To provide support to augment the .499 position the Division currently pays and allow this position to provide full-time service for fall, winter and spring terms, 0.25 FTE is requested.

(NOTE: because the position would be .75, the OPE rate changes)
Instructional Specialist, 0.25 FTE, (L8, S2) $6,875 Salary, $3,699 OPE @ .538, Total = $10,574

5. List the possible funding sources

- *Can this project be partially funded?*
  Yes

- *If so, what portion could be funded at what minimum cost?*
  $10,574 would provide support to augment the current division supported .499 FTE position to a .75 FTE position

If the funding source is Carl Perkins:
N/A

6. Provide ORG & PROG codes

ORG = 691800 and PROG = 111000

7. For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?

N/A

Science Division Unit Plan 2005-2006
General Fund Initiative

Section I: Planning

1. **Initiative Title:** Resource Room **Division Priority Tier #1**

   Science Resource Center Student Support Project

2. **How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?**

   The challenge is to continue to offer student support services through the Science Resource Center. As more services are offered to more students, while staffing levels remain constant, hours of operation are insufficient and quality of service declines. This initiative will provide personnel to run the Science Resource Center and to offer tutoring, testing, and other student services. These services offer support to science classes and help retain students.

3. **Describe the initiative**
   - *How does this initiative align with the strategic directions of the college?*
   - *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
   - *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
   - *Given college resources, is it feasible? Is it an efficient use of college resources?*
   - *What would be the campus location of this request/project?*
   - *How many students (per year) will benefit?*
   - *How will students benefit?*

   This initiative will provide personnel to run the Science Resource Center and to offer tutoring, testing, and other student services. These services offer support to science classes and help retain students.

   The need is for a .75 FTE position where now we have a .31FTE position. The Science Division is already funding this position at close to .5 FTE to offer night hours on Finals week and some summer hours. As the division teaches more summer classes, more support is needed.

   As the Science Division has been teaching up to 90 more sections a year, for the last 3 years our need for student support has also gone up. (The division is already expanding this position as needed.) Without this position the Science Resource Center could not continue to offer the range of hours we do, and student retention would be lowered.

   We serve all Science classes .We serve approximately 340 sections per year and approximately 8000 students.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

Resources needed for this initiative would include funds and support for a .75 FTE position on a recurring basis, minus the costs of the currently funded .31 FTE position.

Instructional Support Position, Level 8, Step 1 @ .75 FTE

Currently funded at .31 FTE
25,369 x .31 = $8,174 Salary and $3,286 OPE @ .402, Total = $11,460

Request additional .44 FTE funding
(Note: *because the position would be .75, the OPE rate changes)*
25,369 x .75 = $19,027 Salary and $10,237OPE @ .538, Total $29,264 – $11,460 = **$17,804**

5. List the possible funding sources

- *Can this project be partially funded?*
  Yes

- *If so, what portion could be funded at what minimum cost?*
  It could be funded at .500 FTE. This is still better than it is now, and summer hours could still be offered.

If the funding source is Carl Perkins: **N/A**

6. Provide ORG & PROG codes

ORG = 691800 and PROG = 111000

7. For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?

N/A

Science Division Unit Plan 2005-2006
General Fund Initiative

Section 1: Planning

1. Initiative Title: Remodel Physics Rooms, Physics Discipline

Division Priority Tier #2

Remodeling the physics rooms

If not paid through General Funds, these projects will require discipline funds that could otherwise be spent on lab equipment and immediate student class needs.

Room	Project	Cost
119	Lower counters to desk height to allow for unified use of lab space (already on the list). Install utility bracket for hanging laboratory equipment from ceiling beam.	
144	Build table boxes for installing computers and monitors in the configuration of room 145 (already on the list). Move HVAC tube, shift lighting, install overhead projector and screen (already on list). Key cabinets for security.	
145	Key cabinets for security. Remove false ceiling, reconfigure lighting. Install utility bracket for hanging laboratory equipment from ceiling beam. Install utility bracket for hanging laboratory equipment from ceiling beam.	
Total		

Science Division Unit Plan 2005-2006
Carl Perkins Initiative

Section I: Planning

1. **Initiative Title:** Equipment and Curriculum Development, Anatomy/Physiology Discipline

Division Priority Tier #1

Educational Support for Future and Current Family and Health Career Students and curriculum development to support the conversion of Human Anatomy and Physiology sequence and Introductory Microbiology course (BI231 – 234) from 4 to 5 credits

2. How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?

Our Program Outcomes analysis shows that we are moving ahead on last year's initiative to change the A &P discipline courses from 4 to 5 credits. We expect to make the change during the 07- 08 academic year. This initiative is for curriculum development support during the 06-07 academic year to accompany the change in credits.

Ongoing work this year will produce revised Learning Outcomes for all of our courses. These outcomes will be aligned with the recently developed Learning Outcomes for Anatomy and Physiology developed by anatomy and physiology instructors and nursing instructors from 2 and 4 year institutions across the state of Oregon (product of the Best Practices in A&P Institutes held at LBCC). Two of these statewide outcomes are not adequately being met in our discipline with our current number of credit hours. They are the following:

Upon completion of the Anatomy and Physiology sequence, students will be able to:

- Approach and examine issues related to anatomy and physiology from an evidence-based perspective.
- Access, evaluate, and use resources to stay current in emerging knowledge about the human body.

Our Program Outcome analysis also shows that through internal science division funding we are making progress on last year's initiative titled "Development of Anatomy and Physiology Specific Materials: Mentoring Manual and Standardized Laboratory Manual". The work we hope to complete on the mentoring manual will provide specific course content and skill outcomes for all of our courses. These detailed outcomes will further guide the development of new curriculum proposed by this initiative. Finally, laboratory exercises that result from this curriculum development will become part of the standardized laboratory manual that is in progress.

Our program outcomes analysis last year also included the need for laboratory materials and models to support student learning. This was fully funded and we are in the process of securing and implementing these materials into our courses.

3. Describe the initiative

This initiative addresses three needs:

1. Support of technology for instruction utilizing computer based research and engaging presentation of complex physiological processes. We are requesting the purchase of a video projector and 16 flat screen monitors to replace the unwieldy monitors that currently occupy our lab spaces. In addition this request is being made to ensure a safe classroom environment. This is a critical concern in the BLD16/Rm 109 microbiology classroom where the large monitors cannot be safely pushed to the back of the lab areas and instead share space with Bunsen burners used to sterilize inoculating needles during the microbiology labs.

2. Resource room model sets. As our population of students has continued to grow there is a burgeoning demand for limited anatomical models. This initiative addresses the need to provide better access by increasing the availability via the purchase of additional models.

3. The need for a deeper study of an expanding subject matter. Curriculum development for the conversion of BI231-BI234 courses from 4-5 credits will allow our courses to address the advances in understanding of physiological processes in order to better prepare students for future learning. This initiative similarly supports the learning plan's focus on curriculum enhancement and Lane's commitment to creating a learning centered environment

- *How does this initiative align with the strategic direction of the college?*

  Transforming Students' Lives

  For the past 10 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 Power point and web-based lecture format. This format allows us to foster the personal, professional, and intellectual growth of learners by providing a seamless format to demonstrate complex and unique physiological processes and anatomical structures in a large screen presentation. Acquisition of anatomical models for our classrooms, resource room and student checkout enhances the student learning experience and student support.

  The initiative for curriculum development to support the conversion of the anatomy and physiology discipline courses from 4 to 5 credits, when implemented, will create a learning centered environment that will foster intellectual growth and prepare students for future studies. It will also allow us the opportunity for assessment of the Anatomy/Physiology Discipline Unit (APDU) programs, services and learning.

  Transforming the Learning Environment

  The acquisition of a Hitachi CJPX 1250 Video Projector and Flat Screen Computer Monitors creates, enhances, and maintains an inviting and welcoming facility that is safe, accessible, functional, well-equipped, aesthetically appealing and environmentally sound. The addition of models to our resource room allows us to maintain a diverse and inclusive learning environment for our pre-medical/health students. The conversion of courses from 4-5 credits will allow us to delve deeper into physiological process and allow for a diverse and inclusive learning environment

- *What will the product, innovation or change of this initiative be?*

  The equipment requested by this proposal will provide students entering or enrolled in the Family and Health Careers Programs a quality learning environment and an enriched understanding of the current medical setting. This will positively impact our community as Lane Community College continues to provide highly trained heath care professionals.

  The product of curriculum development portion of the initiative will be (1) an analysis of both our revised general outcomes for our course sequence and specific content and skill outcomes to determine areas that are not being met adequately and (2) the development of curriculum to address these outcomes. We envision developing curricula such as case history analyses and research projects to address the statewide outcomes and collaborative/group assignments and laboratory exercises to address specific content and skill outcomes. Such curriculum will utilize computer equipment (internet and anatomy and physiology specific software), laboratory equipment and collaborative group interactions. These activities will then be incorporated into our mentoring manual or standardized lab manual as appropriate.

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*

  The need for the requested funds is to continue to equip our classrooms and resource room in such a manner that we do not take a step backward in maintaining and enhancing our existing level of instruction and learning.

  The intended use of the requested curriculum development funds is to support one faculty reassignment time. This will provide the time for a full time faculty member in the APDU to develop curriculum for our Bi231-234 sequence to support the conversion of our classes from 4 to 5 credits. The faculty member would also be responsible for coordinating conversations with the APDU faculty as a whole. The need for this curriculum development work has been assessed by several of our faculty participating in the statewide conversation on learning outcomes for anatomy and physiology coupled with ongoing qualitative and quantitative assessment of our students.

Our curriculum currently does not adequately address at least two of the six statewide learning outcomes developed by answering the question: What do our student need to be able to do "in here" (anatomy and physiology sequence) to be successful out there (in their allied health program)? Analysis of student performance on synthesis skills and qualitative assessment of student understanding coupled with analysis of student responses on surveys, supports the need for more contact time of faculty with students and students with their peers in structured activities designed to help student integrate the large content of our courses or address certain skills. Restructuring our courses from 4 to 5 credits with the addition of new curriculum will allow our students to better meet Anatomy and Physiology/Microbiology learning outcomes, thus better preparing them for the allied health programs they will be entering.

- *Given college resources, is it feasible? Is it an efficient use of college resources?*
  Yes this initiative is feasible. In addition to funds for equipment purchase, we are requesting one reassignment time to support this work. It is an efficient use of college resources because it will impact not only all of our students (>350 /year), it will also impact the family and health career programs they enter at LCC. Since success in A &P has been shown to be a predictor of success in nursing (results of assessment conducted at PCC), if we can better prepare our students this will have a domino effect.

- *What would be the campus location of this request/project?*
  All of these courses are taught in the Science division and all work on this initiative will involve Anatomy and Physiology discipline faculty.
  Building 16/room 105 for the Hitachi CPX 1250 Video Projector
  Building 16/room 105 for flat screen computer monitors
  Building 16/ room 193 for the ocular micrometers, bone sets and models

- *How many students (per year) will benefit?*
  We routinely serve around 350 students per year

- *How will student s benefit?*
  The addition of anatomical models to our resource room and bone sets for student checkout will greatly increase student access. The technology purchase will allow us to equip all of the A&P classrooms with the same level of technology. Students will benefit through the development of curriculum that uses laboratory equipment, Internet, computer software and group work to enhance learning while addressing the various learning modalities present in our classrooms. They will benefit by being better prepared not only the next term of the A&P sequence they enter but also for the allied heath programs they pursue. Curriculum addressing the following outcome: "Student will be able to access, evaluate and use resources to stay current in emerging knowledge about the human body" will have applications past the allied health program they enter.

Section II: Linking Planning to Budgeting – If you need Resources:

4. Describe the resources needed

1. Hitachi CJPX 1250 Video Projector $4,000
2. 8 Dell 1704 FPT 17" Flat Panel LCD Monitors (8 @ $369 ea) $2,952
3. 20 Bones Set (20 @ $302/set)..... $6,040
4. 3 Ocular micrometers (3 @ $100 ea)..... $300
5. Ovary Model..... $349
6. Arm Skeleton with Labeled Attachment..... $359
7. Leg Skeleton with Labeled Attachment..... $445

Equipment Total:..... $14,445

The work on curriculum development will require one course reassignment time during the 2006-2007 academic year for one full time faculty member of the APDU. This work will best be accomplished during the school year because it will rely heavily upon input from other faculty members.

The replacement for level 3 step 4 would be $3,817 Salary, $1,534 OPE @ .402, **Total = $5,351 (equivalent to 144 hours @ $26.44/hr)**

5. List the possible funding sources

Carl Perkins would most appropriately fund this initiative since the Anatomy and Physiology is a service for Family and Health Career programs at LCC. The majority of the curricula we develop will utilize models, laboratory support equipment and computer hardware and software we will purchase or have purchased using Carl Perkins funds in the past. If Carl Perkins does not support the technical equipment purchases then TACT would be the next possible source of funding. If Carl Perkins does not support curriculum development, general fund dollars would be appropriate.

Request for Carl Perkins Funds to support this initiative

We are requesting $14,445 for the purchase of equipment to support instruction and student learning.

We are also requesting one course release of a full time faculty member to develop the necessary curriculum to support our change from 4 to 5 credits. It is best that this work be completed during the school year while other faculty members are available. The replacement for level 3 step 4 would be $5351 ($3817 salary and $1534 OPE @ .402). Thus the **total request is for $19,796.**

It is less preferable that 100 hours of curriculum development be provided because most of this work would then be conducted over the summer break due to the workload inherent with the school year. 100 hours of curriculum development to be shared among the APDU faculty members at a rate of $26.44/hour

It is critical that this initiative is funded for the following reasons:

1. We need to maintain the same level of technology (smart classrooms) in all three of the classrooms used by APUD.
2. We will be taking the request to convert our classes from 4 to 5 credits to the science division and to the LCC curriculum committee this academic year for implementation during the 07-08 academic year. Once the credit change is approved by the curriculum committee we will need to develop curriculum.
3. LCC's nursing program will be a consortium school beginning next year. With this change it is imperative that our classes, which are prerequisites for their program, are in line with statewide outcomes.

How does the request meet one or two of the Carl Perkins goals?

This request addresses the first two Carl Perkins goals as follows:

Goal #1 – Student Skills Gain Goal

It is imperative that our pre-allied health students posses a working knowledge of content and skills necessary to be successful in their chosen field of study. The addition of the curricular material including laboratory materials, peer group collaborative activities and computer research activities will provide our students with skills to assist them in their successful transition into their Family and Health Career program. The purchase of a video projector and flat screen monitors will continue to provide an engaging classroom opportunity for students to enrich their understanding physiological processes.

Goal #2 – Special Populations Student Result Goal

Current data collected from student surveys indicates that of the ~ 350 students that we serve approximately 30 – 40% of our students could be categorized into one of the special population categories (disabled, economically disadvantaged, single parent, displaced homemaker, academically disadvantaged, and limited English proficiency). By addressing specific learning outcomes that are not being met and developing curricula that address diverse learning styles, the opportunity for student success within these populations will greatly increase. The purchase of anatomical models that can be made available in the Resource Room will provide targeted populations more access to classroom materials. The addition of resource room sets of anatomical models will give our pre- medical health students a deeper understanding of human systems and greatly increase the opportunity for student success.

6. Provide ORG &PROG codes:

ORG = 691110 and PROG = 111000

7. For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?

N/A

Science Division Unit Plan 2005-2006
Carl Perkins Initiative

Section I: Planning #1

1. **Initiative Title:** Equipment and Curriculum Development, Physics Discipline

Discipline Priority Tier #1

Creation of Physics courses on Transducers – Transducers in Medicine, Transducers in Manufacturing, and Transducers in Environmental Monitoring

2. **How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?**

Curriculum development and equipment support for three new courses was identified in the last unit plan. These courses meet the needs of current LCC professional-technical students and also professionals working in the community.

3. **Describe the initiative**

- *How does this initiative align with the strategic directions of the college?*
  The courses envisioned "foster the personal, professional, and intellectual growth of learners by providing exemplary and innovative teaching and learning experiences" and "position Lane as a vital community partner by empowering a learning workforce in a changing economy", two of the parts of the Strategic Direction "Transforming Students' Lives".

- *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
  The aim of this project is the creation of curriculum and equipment infrastructure to create physics courses around understanding transducers used in medicine, manufacturing, and environmental monitoring. The transducers focused on are those that are used locally and regionally, where our students may be employed, or where potential students for the courses may already be working. Concurrent with the development of the curriculum, the courses will proceed through the curriculum approval process. Given that such a course is new, having many of its details worked out is a necessary stage in its acceptance.

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
  The need for the course became apparent in teaching principles of technology, which only begins to treat the topic, which is very important. Understanding the physics principles underlying the transducers leads to their more mindful use and is an opportunity to understand basic physics that is useful throughout one's life. The idea of these courses was supported by conversations with students as well as the LCC physics faculty member with the longest, most active record of supporting professional-technical students (Al Gubrud). A few conversations with community professionals gave further support. The Advanced Technology chair has expressed a need for capstone physics courses, and this is one excellent approach to satisfying that need.

- *Given college resources, is it feasible? Is it an efficient use of college resources?*
  Carl Perkins funds support such efforts, and enhance the efficiency of the use of college funds.

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

- *How many students (per year) will benefit?*
  Approximately 70

- *How will students benefit?*
  Students will benefit from having courses that position them for better understanding their potential work, for being more flexible and knowledgeable as the nature of their work changes, and for interacting with people that are in school and out of school.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

300 hours of curriculum development, which includes visits and discussions at local and regional workplaces where transducers are used, contacting vendors about the specifications and possible purchases or donations of specific transducers, and working professional-technical faculty from programs in which students for these courses would be drawn.

300 hrs X $26.44 = $7932 Salary, $3189 OPE @ .402, Total = $11,121

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$7,000 towards the purchase of an assortment of transducers, and the purchasing or fabrication of electronic interfaces to existing physics hardware and software

Grand Total: $18,121

5. List the possible funding sources

- *Can this project be partially funded?*
  Yes, if necessary. The curriculum development along with some purchasing of transducers can get the project started.

- *If so, what portion could be funded at what minimum cost?*
  100 hours and $3000 would work as a start, but the full amount is what is needed.

If the funding source is Carl Perkins:

How does the request meet one or two of the Carl Perkins act goals?

The proposal meets all the goals, specifically

(1) by focusing on transducers used in the workplace in the open environment of LCC, the courses will provide "vocational and technical education, especially work-based learning, to all people and groups equally and without discrimination."
(2) by focusing of transducers currently used and the principles underlying them, the courses provide "vocational and technical education that continually and systematically respond to the trends and demands of the marketplace."
(3) by going beyond the rote use of everyday equipment to understanding it, the courses carry out "the 'whole person' concept of education within vocational and technical education." And
(4) by carrying out the course within the physics discipline, the course carries out "standards of excellence in classroom and laboratory instruction (and) supervised experiences".

The proposal meets at least two of the specific stated goals:

(1) Through introducing deeper knowledge and appreciation of common technical tools, improving "the academic and technical skills of students participating in technical education by…strengthening the technical components of such programs to insure learning in technical subjects". And
(2) Through a general survey of transducers in an industry, providing "technical education students with strong experience in and understanding all aspects of an industry".

6. Provide ORG & PROG codes

ORG = 691600 and PROG = 111000

7. For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?

While the physics discipline does not have an advisory committee, the physics discipline expects to work with the Advisory Committees of all professional-technical programs with students that could utilize these courses.

Science Division Unit Plan 2005-2006
Carl Perkins Initiative

Section 1: Planning

1. Initiative Title: Curriculum Development & Equipment,Physics Discipline

Division Priority Tier #2

Curriculum Development for Principles of Technology, PH 091 and PH 092

Course affected	Curriculum Development Project	Hours needed	Cost
PH 091 and PH 092	Identify and integrate specific calculations and areas of understanding needing integration into Principles of Technology – a collaborative effort by Physics and programs currently served and potentially served by PH 091 and PH 092.	60	$2,224
Total	**Curriculum Development**	**60**	**$2,224**

Costs figures at $26.44 per hour, OPE rate @ .402

Carl Perkins or TACT:

Course affected	Equipment	Cost
PH091 / PH092	7 sets of Sensors to go with LabPro Interface	$4,326
PH091 / PH092	TI-Presenter (displays image of calculator screen)	$235
Total		**$4,561**

Science Division Unit Plan 2005-2006
Student Technology Fee Initiative
Section I: Planning

1. **Initiative Title:** Two .500 FTE Tech Support Division Priority Tier #1

Science Part-time Instructional Support for Technology

2. How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?

The initiative keeps existing instructional technological teaching methods functioning by providing necessary funds to meet the demands associated with rapid technological changes in science instruction. Program level outcomes are dependant on functional technologies related to instruction in all science disciplines.

3. Describe the initiative

- *How does this initiative align with the strategic directions of the college?*
  This initiative transforms students' lives by providing student support services and it keeps the commitment to a culture of services and learning.

  It transforms the learning environment by developing 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. Support staff respond to the needs of differently abled people who need technological accommodations, which are required by the ADA. The support also enhances and maintains facilities that are accessible, functional, well-equipped, and aesthetically appealing.

  This initiative also transforms the college organization by building organizational capacity and systems to support student success and effective operations, which then promotes professional growth. It ultimately provides increased development opportunities for staff both within and outside the College.

- *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
  The initiative would continue funding two part-time Information Technology Technician positions in the Science Division.

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
  The need is to maintain the support of student computers and other forms of technology (too many to list here) used in science teaching by all science disciplines. This initiative is needed to provide personnel to maintain student computers in science laboratories and the Science Resource Center, which offers computer testing and computer use for science classes. These services are needed to support science classes and to retain students.

  The need is assessed by the standard practice of using human resources to maintain student computer workstations and by the needs students have for technical help with existing and new instructional technologies.

  Evidence of the need includes the list of initiatives proposed, approved, and implemented, all of which require support. LCC standards require meeting Lane's strategy to build organizational capacity and systems to support student success and effective operations. Planned expansion of course offerings adds additional evidence.

- *Given college resources, is it feasible? Is it an efficient use of college resources?*
  The project is feasible and necessary to meet science program outcomes and is an efficient use of college resources. The Science Division has added up to 90 sections a year, during the last 3 years and our need for student support has also gone up. Without these positions, the Science Resource Center could not continue to offer the range of hours we do, science laboratories would be compromised, and student retention would be lowered.

- *What would be the campus location of this request/project?*
  The project will be located within the Science and Math Divisions, Building #16, main campus.

- *How many students (per year) will benefit?*
  Last year we had about 6,000 students, however we now serve approximately 8000 students in all Science classes. There are approximately 340 sections per year.

- *How will students benefit?*
  Students will benefit by having an Information Technology Specialists directly helping students in the Science Resource Center (SCI 193) and also in 17 science labs where computers are used. The students will also benefit by having support for the 2004-05 and 2005-06 initiatives yet to be implemented.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

Two 0.5 FTE Information Technology Specialists
.500 x 30,411 (LA, S2) = $15,206 Salary, $6,113 OPE @ .402, Total = $21,319 x 2 = **$42,638**

5. List the possible funding sources

- The project may be funded by the student technology fee.

Can this project be partially funded?
NO!

If the funding source is Carl Perkins:
N/A

6. Provide ORG & PROG codes

ORG = 691800, PROG = 111000

7. For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?

N/A

Science Division Unit Plan 2005-2006
Student Technology Fee Initiative

Section I: Planning

1. **Initiative Title:** Technology Maintenance **Division Priority Tier #1**

Science Division Technology Maintenance Initiative

2. **How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?**

The initiative keeps existing instructional technological teaching methods functioning by providing necessary funds to meet the demands associated with rapid technological changes in science instruction.

3. **Describe the initiative**
   - *How does this initiative align with the strategic directions of the college?*
     This initiative transforms students' lives by providing and maintaining student computers. It keeps the commitment to a culture of services and learning.

     It transforms the learning environment by developing 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. Computers meet the needs of differently abled people who need technological accommodations, which are required by the ADA. The support also enhances, and maintains facilities that are accessible, functional, well-equipped, and aesthetically appealing.

     This initiative also transforms the college organization by building systems to support student success and effective operations, which then promotes professional growth. It ultimately provides increased development opportunities for staff both within and outside the College.

   - *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
     The product will be replacement hardware, software upgrades, and renewal of software licenses.

   - *What is the need or intended use?*
     The need is to replace computer components, printer supplies, and various infrastructure hardware and software.

   - *How was that need assessed? What is your evidence of the need?*
     This need was assessed by purchasing records from previous years, warranty expiration dates, and data storage capacity reduction, which provide cost estimates and evidence associated with this need.

   - *Given college resources, is it feasible? Is it an efficient use of college resources?*
     The project is feasible because of fund availability through the student technology fee. This initiative is especially an efficient use of the resources because it meets the first priority of the principal fund objective, which is to adequately maintain existing technology.

   - *What would be the campus location of this request/project?*
     Building #16

- *How many students (per year) will benefit?*
  Approximately 8,000

- *How will students benefit?*
  Students will benefit by having appropriate hardware and software needed for science instruction

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Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

Student Workstations Maintenance

Software:
- Mac OS X Tiger 10.4 Upgrade License (31 @ $41.30 each)..... $940

Workstation hardware replacement components:
- Keyboards, hard drives, monitors, cables, RAM, mice power supplies, drives, batteries, media, components sound cards, NICs $1,500

Total Workstation Maintenance $2,240

Infrastructure Maintenance

Hardware replacement components:
- Projector lamps, printer supplies $6,000
- Printer replacement (1) Room 188 ..... $1,500

Backup Software Upgrade $1,744

Server hardware replacement components:
- Hard drives $5,640
- Memory $2,274
- SDLT 320 internal tape drive (replacement) $3,277
- Tape Cartridges $940

Warranty extensions $1,447

Total Infrastructure $22,822

Total Resource Cost for Maintenance Initiative $25,062

5. List the possible funding sources

- *Can this project be partially funded?*
  Yes

- *If so, what portion could be funded at what minimum cost?*
  The hardware components will be absolutely necessary during the 2006-07 academic year, however the software upgrades could probably be funded at a later date and this would bring the total initiative cost down to approximately $22,378.

If the funding source is Carl Perkins: N/A

6. Provide ORG & PROG codes

ORG = 691800, PROG = 111000

7. For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?

N/A

Science Division Unit Plan 2005-2006
Student Technology Fee Initiative

Section I: Planning

1. Initiative Title: Classroom Computer Replacements — Division Priority Tier #1

Replacing and upgrading student computers in Science classrooms and Science Resource Room

2. How is the initiative linked to your Program Outcomes Analysis for 2004-05

Each discipline uses computers extensively for student learning activities. This initiative requests replacement of outdated classroom computers to maintain the quality of instruction and support curricular innovations. The computers are overdue for replacement and now exceed the recommended four-year cycle on equipment. Updated computers are needed in classrooms, the Science Resource Center, and the Science computer lab, to provide current technology for student use and to enable geographic information science (GIS) activities in the classrooms. Both Biology and Earth and Environmental Science disciplines plan to implement GIS modules next year.

3. Describe the initiative

- *Aligns with strategic directions of the college*
  The initiative supports students in meeting Lane's Core Abilities such as communicate effectively, think critically and solve problems effectively, and explore academic disciplines and careers. The initiative will
  - Develop and expand the learning experiences available to students
  - Expand learning experiences in professional technical and college transfer programs.

  The initiative aligns with the draft Instructional Technology Strategic Plan. Updating classroom computers will:
  - Help increase student access to learning and improve success and retention for many students
  - Ensure that Science classes are operating at the forefront of instructional technology in both implementation and innovation
  - Be guided by instructional objectives and processes.

  In addition, the initiative will enable disciplines to:
  - Support the development of new curriculum and the redesign of existing curriculum, including GIS activities.
  - Continue to offer a variety of electronic communication options for instructional use and to support faculty in teaching with technology.
  - Maintain up-to-date infrastructure to support ongoing and innovative instructional technology uses: to replace computers that are over four years old, running outdated operating systems, and to enable us to integrate GIS applications into our courses.
  - Establish a practice of college-supported instructional staff-to-staff mentorship: for example, faculty who develop a GIS module will teach others how to use it.

- *Product, innovation or change proposed*
  The table below indicates which rooms and disciplines need replacement computers.

Tech request for replacement computers in Science

Room #	Discipline	Number of students to benefit	PCs	Macs	Total # of computers	Total $ amount
109	Anatomy & Physiology	750	8		8	$9,600
111	Biology	675	8		8	$9,600
119	Physics	150	8		8	$9,600
130	Biology, Chemistry, Earth & Env Sci	600	8	8	16	$19,200
140	Earth & Environmental Sciences	350	10		10	$12,000
142	Earth & Environmental Sciences	400	10		10	$12,000
142	**ArcGIS Software** (Bio & EES)	**1425**	**---**	**---**	**---**	**$1,800**
144	Physics	200	8		8	$9,600
145	Physics	175	8		8	$9,600
152	Chemistry	1,300	13		13	$15,600
193	Science Resource Center	6,000	10	8	18	$21,600
Totals			**91**	**16**	**107**	**$130,200**

- *Need for initiative, evidence for need*
  Computers in these rooms were installed in Spring 2001; they are running outdated operating systems. They passed the four-year mark last spring, and will be used through 05-06. Computer use has increased so that most classes make full use of the technology for Internet research, project preparation, and spreadsheet/graphing analysis. Future use will included embedded GIS modules in several Biology and EES classes.

- *Feasibility*
  The expected costs are reasonable and necessary to maintain computing technology that is up-to-date.

- *Campus location of this request/project*
  See Table.

- *Number of students (per year) who will benefit*
  See Table.

- *How students will benefit*
  Students will complete computer-based assignments more efficiently. New computers will be more robust and faster, with significantly less downtime due to failures. New PCs will be suitable for expanded functions, like GIS.

Section II: Linking Planning to Budgeting

4. Describe the resources needed
See Table.

5. List the possible funding sources
Student Tech Fee

6. Provide ORG & PROG codes
ORG = 691800, PROG = 111000

7. No advisory committee

Science Division Unit Plan 2005-06
Student Technology Fee Initiative

1. Initiative Title: Portable Classroom Computing Laboratory, Chemistry Discipline

Division Priority Tier #1

Portable Classroom Computing Laboratory

2. How is the initiative linked to your Program Outcomes Analysis for 2004 – 2005?

- *What is the challenge you are trying to address?*
  Computerized tools are an important part of chemistry. Many of these are available and useful in the classroom. Computer access is however limited both by physical location (the computer lab is not in the classroom) and the number of computers (eight) available do not allow all the students to participate in the activity at the same time.
- *How will this initiative address the challenge?*
  A portable computer laboratory will allow us to bring the computers directly into the classroom easing access and minimizing disruption/wasted time. Purchasing enough computers (30) will allow all the students to participate in the computer activity together.

3. Describe the initiative

- *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
  This initiative will place twenty-four laptops on a cart with a printer and wireless networking so that a computer laboratory can be rolled directly into a classroom and learning can transition smoothly from traditional classroom activities directly into computer-based activities. This system will be setup so that students have access to science division computing resources so that all department-wide software resources are available in the classroom.
- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
  Computers are not installed in the classrooms (and the classrooms cannot be reasonably retrofitted to have desktop computers installed in that like the teaching laboratories) in Building 16 so that students must transition to the computing laboratory within the building. The computing laboratory has only eight computers available so that only a portion of the students can participate in any learning activity at a time. These resources have been found to be inadequate as chemistry faculty try to bring computer resources into the learning environment.
- *Given college resources, is it feasible? Is it an efficient use of college resources?*
  The cost of laptop computers is somewhat higher than desktop models, however placing these on a secured cart allows for them to be used in many different locations and in different ways throughout the term. This allows for using less resources overall to achieve the same goals, making this an efficient use of college resources. The computers will be maintained by the science division computer support team and will be managed and secured by the physical science stockroom manager.
- *What would be the campus location of this request/project?*
  These computers would be kept in a secured location in Building 16 by the science division. While this request is specifically for the chemistry faculty, these laptops would be available for use by all science faculty.
- *How many students (per year) will benefit?*
  The chemistry discipline instructs 1300+ students each year. Many of these students will be given the opportunity to use these computers throughout the academic year. This will also free up other computing resources increasing their usage as well.

- *How will students benefit? How specifically will it address Core Abilities or Learning Outcomes of your program?*
  Computer literacy is critical for chemistry as well as all science students. Bringing computers into the classroom will both improve chemistry learning and increase students exposure to and comfort level with technology

4. Describe the resources needed.

A secured cart with laptops (30), wireless hubs (2) and laser printer (1)

Equipment	Price	Extended Price
30 Dell Laptop (Inspiron 1150)	$1,545	$46,350
Mobile Notebook Security Cabinet (NSC-030)	$1,825	$1,825
Wireless Network Hubs	$800	$1,600
HP4200 Printer	$1,500	$1,500
Total		$51,275

5. List the possible funding sources

This is being submitted as a TACT request

a. *Can this project be partially funded?*
   Partially funding this project would severely limit its functionality.

b. *If so, what portion could be funded at what minimum cost?*
   The number of computers purchased. Usage of this system would be limited with less than 24 laptops and would not be worthwhile with less than 12.

6. Provide ORG & PROG codes

ORG = 691200, PROG = 111000

7. For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?
N/A

Science Division Unit Plan 2005-2006
Student Technology Fee Initiative

Section I: Planning

1. Initiative Title: GPS Receivers , Biology Discipline Division Priority Tier #2

Purchase of GPS Receivers

2. How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?

Geographic Information Systems are tools that are being used in more and more areas. To better prepare our students for a GIS oriented society, several divisions (Biology, Earth & Environmental Sciences, Social Science and CIT) joined to request curriculum development funding to explore a two-pronged approach to improving the teaching of GIS at Lane. One part of the program is to establish a three-course sequence for students interested in careers in GIS. The other is to introduce students in a variety of courses to the benefits and challenges presented by the growing use of GIS. This could be accomplished by incorporating GIS centered modules into courses. Last year, we were awarded funding to begin the design of courses and modules as part of an NSF Grant Proposal.

Within the Biology Discipline, we have begun the design of a number of modules that we can complete as soon as the GIS software is made available on the server. Additional modules are being prepared in Environmental Science and Geology.

One of the most challenging aspects of designing modules that not only teach the fundamentals of GIS but also act as new media for teaching the course material, is that it is critical to obtain usable geographic data. Perhaps the most meaningful (and often the most useful) data for students to work with is that generated through their own efforts. Recent improvements in the design of Geographic Positioning System receivers has made these hand-held devices both more reliable and more affordable than ever. The data collected with GPS units can be downloaded directly into GIS software, giving students the opportunity to manipulate and visualize the results of their work soon after returning from the field.

Projects that integrate hands-on learning, the latest technologies and the most recent trends in information management will provide students with deeper understanding of course material, the central concepts of geographic information manipulation and geographic information career opportunities.

3. Describe the initiative

- *How does this initiative align with the strategic directions of the college?*
  Providing students with the opportunity to engage in hands-on, innovative, technologically oriented exercises will improve student learning and help students become more self-reliant while at the same time enhancing inter-personal communication. Groups of students will use the GPS units to gather various kinds of data in the field and then will work together to analyze and synthesize the meanings of the information they have collected.

  One result of integrating GIS modules into a variety of classes is that students will become aware of the career opportunities in the field of geographic information utilization. The use of GPS units is an important aspect of this work, and students familiar with these tools will be better prepared for geographic work or for transfer into geographic studies at four-year schools.

  Student use of GPS instruments will improve our ability to assess student understanding of how real-world geographic information is incorporated into information analysis.

  The need for GPS competent workers is constantly growing. The full potential of GIS, and one of its most important field tools, the GPS receiver, has not yet been realized. We must move in a direction that provides this kind of expertise for an ever more geographically oriented workforce.

- *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
  Data collection in the field has always been an essential component of biology exercises, just as it is an essential component of conducting biological research. Field biologists (and many others) are relying ever more heavily on electronic tools for data collection. Our science classes must move in the same direction. The purchase of a set of GPS units will allow students to get an immediate appreciation of these recent trends. In addition, allowing students to gather their own data, and input them quickly into computer programs for analysis, will enhance student learning of the course material and will enhance student retention.

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
  As noted above, the world of information analysis is expanding exponentially. One area experiencing especially strong growth is in geographic information manipulation. Currently, Lane's offerings in this area are quite limited. With the approval of curriculum development for GIS modules, we can begin to address this short-fall. Providing students with additional tools that enable them to advance into the increasingly technological future is vital.

- *Given college resource is it feasible? Is it an efficient use of college resources?*
  The cost of GPS units has dropped to the point where many people are purchasing them for recreational use. The potential benefits make this a most efficient use of funds.

- *What would be the campus location of this request/project?*
  The units would be stored in a locked cabinet in the Life Science Lab Prep room in building 16.

- *How many students (per year) will benefit?*
  The potential is great. If just one teacher uses the units in each class, about 270 students would benefit. It is likely that many instructors would make use of the GPS receivers and so it is likely that well over a thousand students a year would benefit.

- *How will students benefit?*
  Using an electronic tool to gather data for computer analysis will benefit students because they will:
  a. obtain worthwhile experience with an instrument being recruited into such diverse fields as biological, geological and other science research, utilities management, agricultural efficiency, natural resource management, and property value assessment;
  b. get a deeper understanding of the material taught because they will be collecting their own data using advanced technology; and
  c. learn about career opportunities in the area of geographic information gathering.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

To allow an entire class of students to participate in the use of GPS technology, we should purchase at least 18 units. In addition, we will need the accessories listed below:

Item	Number	Unit Price	Total
Garmin eTrex Legend GPS receiver	18	$169.99	$3,060
PC interface cable	18	35.95	$647
12 volt adapter	6	37.95	$228
Training video	1	19.95	$20

Total			$3,955

5. List the possible funding sources

Because GPS receivers are technological learning tools, the most logical source of funding for this purchase is the student technology fee. Students will have direct hands-on use of the equipment, as is appropriate for items purchased using this source.

- *Can this project be partially funded?*
  The use of GPS receivers is best done as a class project. Fewer than 18 units would require teaching in demonstration style, rather than with a hands-on approach.

- *If so, what portion could be funded at what minimum cost?*

If the funding source is Carl Perkins: **N/A**

6. Provide ORG & PROG codes

ORG = 691120 and PROG = 111000

7. For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?

N/A

Science Division Unit Plan 2005-2006
Student Technology Fee Initiative

Section I: Planning

1. **Initiative Title: <u>Data Acquisition Hardware, Physics Discipline</u>**

<u>Division Priority Tier #2</u>

Funding for physics data acquisition hardware

2. **How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?**

This request is based on last year's outcomes analysis, and re-frames the request based on feedback that the request was perceived as not clearly for information technology.

3. **Describe the initiative**
   - *How does this initiative align with the strategic directions of the college?*
     This hardware supports pedagogy that is transformative in the way students think in physics as well as generally.
   - *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
     The hardware allows students to capture in digital format data from physics experiments that is then analyzed and presented in a visual format in real time. This allows an effective physics pedagogy that engages students and directly confronts misconceptions.
   - *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
     The hardware is standard equipment in physics labs in the separate lab and lecture-lab settings. The hardware is used in conjunction with physics laboratory objects, like moving masses, substances at various temperatures, etc. The activities in which this hardware is used is based on pedagogies supported by extensive physics education research. Our physics rooms need both new equipment and updating hardware that is out of date. This request represents our highest priority, and not all that physics needs in the way of information technology hardware or software.
   - *Given college resources, is it feasible? Is it an efficient use of college resources?*
     Yes
   - *What would be the campus location of this request/project?*
     Main campus, in three physics rooms
   - *How many students (per year) will benefit?*
     Between 50 and 200 per term, depending on achieving other initiatives
   - *How will students benefit?*
     Students will benefit by learning more and more deeply through the use of effective pedagogies that are implemented using this hardware.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

The following is requested:

14 LabPro Physics Packages (PHY-DX with special rate) at $838 each = Total $11,732

5. List the possible funding sources

- *Can this project be partially funded?*
  Partial funding is probably best along these lines: eliminate one or two packages, which serve as the teacher's example set-up (13 or 12); eliminate one classroom set (7).

- *If so, what portion could be funded at what minimum cost?*
  These options (above) are $10,894, $10,056, and $5,866, respectively.

6. Provide ORG & PROG codes

ORG = 691600 and PROG = 111000

7. For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?

N/A

Science Division Unit Plan 2005-2006
Student Technology Fee Initiative

Section 1: Planning

1. Initiative Title: Equipment, Physics Discipline **Division Priority Tier #2**

Equipment for Principles of Technology, PH 091, PH 092

Carl Perkins or TACT:

Course affected	Equipment	Cost
PH091 / PH092	7 sets of Sensors to go with LabPro Interface	$4,326
PH091 / PH092	TI-Presenter (displays image of calculator screen)	$235
Total		**$4,561**

Science Division Unit Plan 2005-2006
Curriculum Development Initiative

Section I: Planning

1. **Initiative Title:** Curriculum Development, BioBonds **Division Priority Tier #1**

Curriculum Development Pay to Develop Effective Program Assessment, to Create Shared Activities that Integrate Ch 112 and Bi 112, to align the Topics of these two Courses and to Build Organizational Capacity of this Learning Community.

2. **How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?**

The BioBonds learning community consists of Ch 112 and Bi 112. It features linked sections of student cohorts and is prerequisite to the Anatomy and Physiology and Microbiology sequence in the Science Division. We have evidence, much of it anecdotal, that creation of this learning community has improved retention of our students in these courses and has improved their preparedness and success in the Allied Health programs. This learning community has attracted attention state-wide and is now serving as one model in the quest for standardized prerequisites for the study of Anatomy and Physiology among Oregon's institutions of higher learning. Program Outcomes Analysis for 2004-2005 and previous years highlight the value of planned assessment, and point out difficulties we have had for students, office staff and instructors. These analyses and our personal experiences have shown us how these problems can be solved. (a) We will work from our previous efforts to develop effective assessment tools. (b) We will align the topics of these two unique courses so that students can benefit more fully from both. (c) We will create shared curricular activities between these two courses. (d) And we will build on the BioBonds Assessment Project to create a sustainable organizational capacity that will give BioBonds a "welcoming" atmosphere of success for students. We have made small "band-aid" adjustments during the last few years, and we desperately need to integrate this work into one powerful learning community.

3. **Describe the initiative**

- *How does this initiative align with the strategic directions of the college?*
  BioBonds is an innovative learning community that is the foundation for student careers in the Allied Health field. It exemplifies a learning centered environment and is in the process of transforming the way entry-level allied health courses are offered in this state. It has transformed the way students prepare for their Allied Health careers, and we feel it has moved us toward increased honesty and fairness in preparing our students. We feel that the changes we propose in this initiative will allow us to realize exemplary and innovative teaching and learning experiences envisioned in the creation of BioBonds.

- *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
  The outcomes of this initiative will include:
  (a) clear and effective assessment tools for BioBonds as a program to prepare students for A&P and for Allied Health careers;
  (b) an innovative and integrated sequence of topics in the paired Ch 112 and Bi 112 courses so they will fully complement each other and provide enhanced learning and understanding for the students;
  (c) such shared activities as case study activities that will be part of both courses and will provide genuine interest, motivation and integration of the subject matter for the students, and
  (d) organizational capacity, including coordination, policy and forms, that will ease students, office staff and instructors through the beginning of each term and beyond.

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
  The BioBonds learning community has been successful at a cost. Clear and effective assessment tools require time to develop and time to implement. We have used student surveys and anecdotal information. As BioBonds develops statewide attention, we need dedicated assessment. Since the creation of BioBonds, it has been our intention to fully integrate the two courses in terms of content topics and shared activities. Such integration, however, doesn't just evolve; it requires focused attention and hard work. Lastly, non-class time devoted to organizational issues unique to this learning community has been inordinately high compared to other science courses, time spent by support staff and instructional staff. Development of clear organizational capacity will save a great deal of time, effort and frustration.

- *Given college resources, is it feasible? Is it an efficient use of college resources?*
  Resources needed (see below) appear to be well within college feasibility. Providing curriculum development pay of only 180 hours will save a great deal of staff time in the future, resolve organizational issues and create an even more empowering learning environment for students.

- *What would be the campus location of this request/project?*
  This work would be done by Science Division staff and would be implemented within the Division.

- *How many students (per year) will benefit?*
  We offer at least 16 sections of this learning community each year, with 20 to 26 students per section completing the course of study. This proposed initiative will therefore benefit 320 to 416 students per year.

- *How will students benefit?*
  Students will benefit from continued assessment and change in this program, from improved instructional sequence, from a more interesting and therefore motivating classroom experience, and from more student-friendly policies regarding registration and other administrative processes. Many of the students who enter BioBonds are returning to school after one or more years absence, many work, have families and other obligations. Many appear unprepared and typically evidence heightened anxiety as they begin these courses. Yet, after a few weeks of study, their true potential begins to appear and many become strong candidates for their chosen Allied Health programs. These proposed changes will give them clarity, confidence and motivation from the beginning.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

We are requesting 180 hours of curriculum development pay. We are requesting 80 hours of curriculum development pay for each of two part-time instructors, one instructor of Ch 112 and one instructor of Bi 112, and 20 hours of curriculum development pay for a full-time faculty member and instructor of BioBonds as oversight.

180 hr x $26.44 = $4759 Salary, $1913 OPE @ .402 = ... Total $5,930
20 hr x $26.44 = $529 Salary, $213 OPE @ .402, = ... Total $ 742
Grand Total $6,672

5. List the possible funding sources

- *Can this project be partially funded?*
  In addition to the present initiative proposal, the Science Division is proposing other initiatives. The only other funding source for this curriculum development proposal is funds accruing to Science from tuition based courses. This fund already supports other needs and its level of funding is always uncertain. In addition, other proposed initiatives may have to rely on this source of funding. We estimate that perhaps 15% of the funding needed for this initiative might come from this source. We would like to stress that any level of funding to this initiative will be beneficial, and that the benefit will increase progressively with increased funding.

- *If so, what portion could be funded at what minimum cost?*
  Uncertainly up to 15% of the funding needed for this initiative might come other sources. (See above paragraph.)

If the funding source is Carl Perkins: N/A

6. Provide ORG & PROG codes

ORG = 691120 and PROG = 111000

7. No Advisory Committee

Science Division, Unit Plan 2005-06
Curriculum Development Initiative

Section I: Planning

1. **Initiative Title:** Curriculum Development, Biology Discipline **Division Priority Tier #2**

Expand Course Offerings in Biology: Implement the development of curriculum for a BI103, non-majors on-line course entitled "Evolution and the Diversity of Life".

2. How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?

This initiative meets the challenge of expanding and enhancing the relevance our biology course offerings. Adding a sequence of lecture/lab topical courses in biology will afford our students more options in completing their AAOT degree requirements. It also addresses the challenge of providing students with greater opportunities for utilizing the "scientific method" and critical thinking skills through scientific inquiry. There are several program level student Learning Outcomes that will be addressed. The student will:

- communicate more effectively about Science, by reading and writing about current topics in evolution.
- have an increased ability to make informed decisions about biological issues
- have an increased awareness & appreciation of all life on earth
- Demonstrate the ability to conduct and to understand scientific inquiry.
- Understand the difference between scientific patterns of thought and other patterns of thought.
- *Be able to relate course knowledge to articles about science*
- Explain the evolutionary processes that shape the unity and diversity of organisms on earth and contribute to characteristics and adaptations
- Understand the principles underlying the classification of organisms and be able to describe the distinguishing features of the major categories of organisms
- Understand hierarchical levels of biological organization (molecular to biosphere)
- Understanding of the critical interactive role among organisms (including humans) and be able to use of this information in decision-making.

3. Describe the initiative

- *How does this initiative align with the strategic directions of the college?*

  This new course will help to transform students' lives by fostering the personal, professional, and intellectual growth of learners. It is a fundamental challenge of scientists, not only to advance our understanding of biological phenomena through scientific pursuit, but to bring an understanding of that knowledge to the forefront of our society and our students. This is the fundamental initiative for teaching science to non-majors and is the driving force for the development of this new online course: by providing exemplary and innovative teaching and learning experiences.

  This course comes at a critical juncture in the political and sociological aspects of our society, where evolution theory is still largely unaccepted by the general public due primarily with conflicting religious interests. Despite its unpopularity and negative press, scientific advances over the past century have made evolution theory one of most grand and unifying theories in the biological sciences. Evolution theory is far reaching in its ability to explain and predict biological outcomes. It not only provides an explanation for the radiation of species on our planet, but also allows critical advances in our understanding of many areas of science including ones of agricultural (pest/disease control for crop management), and medical (understanding and treating diseases such as AIDS and cancer) relevance.

- *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*

  Funds will be used to develop a 4 credit lecture/lab course that will be offered as part of our online curriculum. Several on-campus laboratory exercises will be offered as an evening component of the course to complement online lessons and allow hands-on scientific learning. This approach has worked

well with other online biology courses offered by the college. The layout of the course will utilize a backward chronology approach that begins with a study of humans and modern mammals and ends with investigations into the origins of life on Earth. This framework will explore the diversity of life by using examples from the different Kingdoms of Life to explain more complex biological topics, such as methods of speciation, molecular genetics/inheritance, adaptive radiation, plate tectonics, etc. Course objectives will satisfy the AAOT transfer requirements of a lecture-lab science class under the BI103 classification and will include the following global concepts:

- The meaning and process of scientific inquiry
- The theory of evolution
- The evidence for evolution
  - Molecular genetics/patterns of inheritance
  - Geological History (radiochemical and relative dating)
  - Fossils and comparative anatomy
- The mechanisms of speciation
  - Geographical versus reproductive isolation
- Patterns of evolution
  - Natural selection and adaptive radiation
  - Island biogeography
  - Behavioral evolution
- The relationship between evolution and taxonomy
  - Development of clade and phylogenic analysis
- Macroevolution vs. microevolution
- The rise of the major groups of organisms
  - Purview of the major classes of life
  - Comparison with the geological time scale
  - Mass extinctions and major life eras
  - Origins of life on Earth

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*

  The need for this course reflects the goals of the Biology discipline to offer a diverse set of subjects, which are specific in content but cover a widely accepted set of important "core" biological principals and concepts. The Biology discipline refers to these content-specific classes as "emphasis" classes. This provides students with an opportunity to choose from a variety of topics that match their interests and allows for instructors to generate excitement and interest in a subject that coincides with their area of expertise. The proposed course will focus specifically on the principals of evolution, while addressing the core concepts of a BI103 class: ecology, a survey of the Kingdoms of life, and evolution. The subject is very relevant to students' lives in areas such as "genetically modified organisms", emerging diseases, resistant strains of bacteria and insects, and the discussions about the origin of life on Earth.

- *Given college resources, is it feasible? Is it an efficient use of college resources?*

  Based on the high enrollment in other BI103 courses that include evolution as a smaller section, and discussions among students and other faculty, there is a great interest in the subject matter; therefore, enrollment should be high and the course should be "self-sustaining". This also makes it an efficient use of college resources.

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

  This course will be developed as an online course to widen accessibility for working/commuting students. On campus laboratory sections will be taught in the Biology classrooms of building 16.

- *How many students (per year) will benefit?*

  Initially, this course will be offered as one section in one term, reaching about 25 students, directly. If the course proves popular, we could expand to one section for two terms. The curricular materials developed for this course, especially the virtual, on-line resources can be utilized in other Biology courses and some Geology courses offered at Lane, since all of them include a component of evolution. Thus, while only 25 students will be effected directly through their participation within this course section, the benefits of this development will be seen and affect a much larger student population.

- *How will students benefit?*
  One of the key benefits of the biology "emphasis" courses for students is the ability to satisfy their science transfer requirement by choosing a subject that matches their interest. By offering "Evolution" as a BI103 emphasis class, students will have the opportunity to study a topic that is considered to be the "central theory" of biology. The topics covered in this course will also allow for collaboration with other classes, such as anthropology, geology, chemistry, geography, mathematics, and philosophy. This would create the possibility for Learning Communities to be formed. Students will utilize outside resources such as the University of Oregon Natural History Museum, which will strengthen community connections with the college,

4. Describe the resources needed

Resources to develop online teaching tools, including wet lab and virtual laboratory exercises

Personnel
Develop online teaching tools 100 hrs @ $26.44 = $2,644 salary, $1,063 OPE @ .402 = ...$3,707
M&S
Computer learning tools and site licensing $2,000
Wet Lab Development.....$500
Total Request $5,207

5. List the possible funding sources

- *Can this project be partially funded? If so, what portion could be funded at what minimum cost?*
  The most appropriate funding source would be curriculum development. Full funding of this project will allow the focused, expedient development of this online course. However, partial funding of at least 2/3 ($1,700 for computer learning tools and $500 for wet lab development) of the requested amount will still meet the needs for the curriculum development albeit at a more restricted pace as off-setting salary costs will be under budgeted.

If the funding source is Carl Perkins: N/A

6. Provide ORG & PROG codes

ORG = 691120 and PROG = 111000

7. No Advisory Committee

Science Division Unit Plan 2005-2006
Curriculum Development Initiative

Section I: Planning

1. Initiative Title: Curriculum Development, CH 105 & CH 106 - Chemistry Discipline

Division Priority Tier #1

Curriculum development for Introduction to Organic Chemistry (CH105) and Introduction to Biochemistry (CH106) revisions

2. How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?

The chemistry discipline's program outcome analysis for 03-04 focused on technology based goals. Last year, no chemistry discipline TACT or curriculum development initiatives were funded. This initiative is not directly related to technology outcomes, although students taking introductory organic and biochemistry would use computers and other technology in the lab and would also use classroom laptops should that initiative be funded by TACT this year. This initiative does meet two of the goals outlined in the Science Division's strategic plan. Goal #8: to meet existing demand for classes and goal #9: to expand learning opportunities. Some of the action steps listed for these goals include developing curriculum, conducting program assessment, and developing long term direction for programs and coordination between programs By completing this project we will be making major revisions to curriculum by assessing our current curriculum and labs and making revisions. We will be developing long-term direction for these classes by having a full time faculty teach one section and by preparing materials for all CH 105 and 106 instructors to use. Student retention should also be improved by this project.

3. Describe the initiative

- *How does this initiative align with the strategic directions of the college?*
  CH 105 Introduction to Organic Chemistry and CH 106 Introduction to Biochemistry are part of the general, organic, biochemistry sequence taken by students planning on earning B.S. degrees in health related fields such as nursing and dental hygiene. CH105 and 106 have been taught by part-time faculty only for more than ten years. For the first time this year, a full time faculty member will teach these courses. Revisions and/or development of these courses (and specifically the labs and other packet materials) will help us create an innovative learning experience for our students as well as help meet two goals outlined in the Science Division's strategic plan (see above). Additionally, materials developed for these classes would be available for use in potential future online versions of these classes, improving accessibility for Lane students.

- *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
  CH105 and 106 are in need of major revisions. A lab manual for CH105 needs major revisions and currently no manual exists for CH106. In order to develop a lab manual, labs must be researched, tested, adapted and written before being introduced to students (a very time consuming endeavor). A packet also needs to be developed for these classes to include learning objectives, assignments, projects, as well as labs at a minimum. Labs, projects and other assignments utilizing the computers in the chemistry labs need to be developed and tested. If another chemistry discipline initiative for classroom laptops is approved, new assignments will need to be developed to use this added technology.

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
  Funding to support the development of labs, activities, assignments, etc for CH105 and 106 is needed. This need was assessed by analyzing the materials currently available (or the lack there of) for the 105 and 106 classes. Discussions with current and recent part-time instructors also lead to this request. Our evidence of the need is the lack of a complete class packet for each course as well as the absence of assignments, projects, and labs utilizing available technology. This need was also assessed by reviewing the goals of the Science Division's strategic plan.

- *Given college resources, is it feasible? Is it an efficient use of college resources?*
  This is an extremely feasible request. Once developed, the materials for CH105 and 106 will be used and revised each year in two sections of each course taught each year. These materials will also be available to use for an online course should one be developed for CH105 and 106 in the future. The successful funding of this request will also make it easier for the chemistry discipline to add other sections of these courses in different terms should a future need arise.

- *What would be the campus location of this request/project?*
- *How many students (per year) will benefit?*
  Since CH 105 and 106 are both lab classes, 24 to 26 students are in each section, with two sections of each course taught each year. Most of the students taking CH105 will also take 106. One week after registration began, one CH 105 section was already full. The success of this project will make offering these courses in different terms a possibility as well, allowing the chemistry discipline to meet it's goal of expanding learning opportunities.

- *How will students benefit?*
  The students will benefit by having a complete packet for each of their courses. They will benefit by being able to use available technology for which no current labs or assignments exist. By developing up-to-date labs that compliment the material discussed in class the student will have a hands-on learning experience and will be able to apply topics discussed in class to real-life situations. Creating a concise packet will also help improve student retention in CH 105 and 106.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

200 hours for full and part time faculty to work together to research, test, write and revise labs and packet materials. Preparation of lab materials is often more labor intensive than revision of classroom materials.

Professional development funds: 200 hours @ $26.44 per hour = $5288 salary, $2126 OPE, Total: $7,414
Currently no new equipment is being requested.

5. List the possible funding sources

- *Can this project be partially funded?*
  Yes

- *If so, what portion could be funded at what minimum cost?*
  Less funding will cause a significant decrease in the quality of the product.

6. Provide ORG & PROG codes

ORG 691200 & PROG 111000

7. **For programs that have advisory committees: What plans do you have for working more effectively with your Advisory Committee?**

N/A

Science Division Unit Plan 2005-2006
Curriculum Development Initiative

Section I: Planning

1. **Initiative Title:** Curriculum Development New Course, CH 111Chemistry Discipline
   Division Priority Tier #2

   Curriculum Development for CH 111 Forensic Chemistry, new course

2. **How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?**

   The chemistry discipline's program outcome analysis for 03-04 focused on technology based goals. Last year, no chemistry discipline TACT or curriculum development initiatives were funded. This initiative is not directly related to technology outcomes, although students taking forensic chemistry would use computers and other technology in the lab and would also use classroom laptops should that initiative be funded by TACT this year. This initiative does meet two of the goals outlined in the Science Division's strategic plan. Goal #8: to meet existing demand for classes and goal #9: to expand learning opportunities. Some of the action steps listed for these goals include adding classes strategically, identifying and expanding scheduling, formatting and instructional enhancements, and identifying potential students (those we don't currently serve). By completing this project we will be adding a new class to serve students not currently enrolled in chemistry classes as well as expanding and enhancing our course offerings.

3. **Describe the initiative**
   - *How does this initiative align with the strategic directions of the college?*
     In the past five years the interest in forensics has grown with the debut of CSI and many other forensic based shows on television. We have an excellent opportunity to introduce Lane students to science and chemistry in the context of forensics and meet two goals outlined in the Science division's strategic plan (see above). The development of a forensic science class will provide students (many whom are not currently enrolled in chemistry classes) with an innovative learning experience. The students will learn basic chemical concepts in a forensics context and apply what they have learned in an end of term project, presenting the evidence and their analysis in a mock trial. Developing a class such as this supports creativity and experimentation. Students must be creative in the way they solve their crime and will spend the term experimenting with the best methods to do just that. This class also gives its instructor the opportunity to be creative by developing specific projects for students to demonstrate what they have learned as well as creating an on campus professional development opportunity to learn new skills such as how to run gel electrophoresis so DNA can be analyzed. This class also provides the opportunity for collaboration on campus between the science division and the criminal justice department, as well as within the biology and chemistry disciplines in the science division. A class such as this also gives us the opportunity to create relationships within our community by inviting guest speakers and perhaps taking our students on field trips to see how the science we have discussed in class is used in the real world. What better way to make science accessible to all than by introducing science with context!

   - *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
     A forensic based introductory chemistry course will be developed. No such course is currently offered at Lane. Course materials, labs, assignments and projects will need to be developed and/or revised. Many of these materials have already been developed from work done at a different institution where the course was co taught with a biology instructor. These materials

would need to be revised and in some cases developed for the course to be taught at Lane by only one instructor.

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
  The need is for curriculum development funds to develop a forensic chemistry class. The need has been assessed by informal discussion with colleagues and students. Chemistry classes are generally full classes however there is a desire by the chemistry discipline to offer new and different application based courses to meet two goals outlined in the Science Division strategic plan. Currently, the chemistry discipline offers only one introductory course for non-science majors (CH110 Chemistry in Everyday Life).

- *Given college resources, is it feasible? Is it an efficient use of college resources?*
  This is an extremely feasible request. Once developed, this course can be modified regularly if needed. It would become a regularly offered course (perhaps in more than one term) and would be expected to fill because of the forensic context. It would also compliment the Chemistry of Everyday Things already being offered by the chemistry discipline. Offering two terms of introductory chemistry would give Lane students another opportunity to meet their general education science requirement without having to take a majors level class such as general chemistry.

- *What would be the campus location of this request/project?*
  This class would be offered by the chemistry discipline in the science building (16). It would meet for three or four hours a week in a classroom and two hours a week in a lab (4 or 5 credits total).

- *How many students (per year) will benefit?*
  Because this would be a lab based class, only 24 students could enroll. The first year we would likely offer the course once, and after assessing the course perhaps add sections so up to 72 students a year would benefit more if the resources were available to offer additional sections.

- *How will students benefit?*
  The students will benefit because they will have an additional opportunity to earn general education science credit. The students will benefit because they will learn chemistry in a fun and popular context that impacts their lives. The students will benefit because the course supports many of Lane's core values and it's strategic directions. This is one more way we will be able to Transform Lives through Learning.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

Curriculum development funds: 100 hrs @ $26.44 per hr = $2644 salary, $1063 OPE @ .402, Total $3,707

(only 100 hours are requested because many of the materials have already been developed at a previous institution) Currently no new equipment is being requested.

5. List the possible funding sources

Can this project be partially funded?
Yes

If so, what portion could be funded at what minimum cost?
50 hours at half the cost listed above

6. **Provide ORG & PROG codes**
   ORG 691200 & PROG 111000

7. **No Advisory Committee**

Science Division Unit Plan 2005-2006
Curriculum Development Initiative

Section I: Planning

1. Initiative Title: Curriculum Development, EES Discipline, Expand Course Offerings

Division Priority Tier #1

Expand Course Offerings in Earth and Environmental Science

2. How is the initiative linked to your Program Outcomes Analysis for 2004-2005?

This initiative meets the challenge of expanding learning opportunities in the EES curriculum. Geology students currently are limited to taking either a standard 100-level introductory sequence or a 200-level sequence for science majors. EES faculty identified a need for expanded course offerings in our 03-04 plan, proposed new courses in 04-05, and we are currently developing two new courses to be taught this spring. We are using resources for curriculum development from tuition-based revenues within Science. This funding is inadequate to fully compensate faculty for their work or to develop the additional courses we have planned. Adding lecture/lab topical courses in geology will afford our students more options in completing their AAOT degree requirements.

3. Describe the initiative

Aligns with strategic directions of the college

This initiative meets numerous elements of the college's vision, mission and goals, as well as contributing to the college's strategic plan:

- recognize and respect the unique needs and potential of each learner
- support creativity, experimentation and institutional transformation
- develop and expand the learning experiences available to students
- expand learning experiences in professional technical and college transfer programs.
- enhance lifelong personal development for members of the community as a community service
- promote responsible stewardship of natural systems
- ALL aspects of Lane's Core Value of Innovation

Product, innovation or change proposed

The product of this initiative will be two additional 4-credit lecture/lab courses. The courses will need to be approved by the Curriculum Committee and forwarded through the state approval process. We propose these course numbers and titles:

G145 Introduction to Pacific Northwest Geology
G148 Natural Disasters

Introduction to Pacific Northwest Geology allows us to teach concepts of plate tectonics, rocks and minerals, volcanism, continental accretion and mountain building in a way that is very relevant to our region. The course will take advantage of vast local resources of learning materials in the form of local rocks, local plate tectonics and field trip destinations. By focusing on the Pacific Northwest, students can become more involved and excited because they can see the geology around them. The course could be taken as a stand-alone elective or as a complement to the survey sequences.

Natural Disasters will teach surface processes with a focus on geohazards, weather disasters and environmental issues. These topics can capture students' imaginations while at the same time exposing them to important scientific concepts. The course can help people become better-informed citizens for decision making in dealing with geologic and meteorologic hazards. The course could be taken as a stand-alone elective or as a complement to the survey sequences.

Need for initiative, evidence for need
The present Geology curriculum is very limited and does not extend a wide range of choices to students. Other community colleges in the State offer these topics. Offering topical courses provides students with expanded variety that will attract their interest and give them more options for meeting their AAOT science requirements.

The courses will be 4-credit course with labs, designed for non-science majors and can be taken in lieu of or in addition to the current Geology 100 series. Science majors with particular interests in these topics could also benefit. In addition the courses will appeal to the general public interested in geology.

Feasibility
A review of the course offered at two- and four-year colleges in Oregon indicate that these courses are offered at several other colleges, thought not always in a lab format or as a sequence. *Introduction to Pacific Northwest Geology* is not offered at UO but a 300-level course there, *Geology of Oregon and the Pacific Northwest*, is a popular elective science.

Several of the part-time faculty members in EES have taught these courses in a lecture format and are qualified to develop the lab/lecture format needed at Lane. A modest investment of curriculum funding would support two faculty to develop these courses; they would be come annual offerings in our schedule.

Campus location of this request/project
These courses will be taught in the Earth and Environmental Sciences discipline, Science Division, main campus.

Number of students (per year) who will benefit
We initially envision offering one-section per year of each course, reaching about 50 students. These courses will also be excellent summer term options. These courses will bring in students who might not be attracted to the standard survey sequence of courses. We intend to replace existing 100-level courses with the new courses initially, in order to not increase our part-time to full-time FTE ratio which is already very high. If the courses prove popular, we will expand to two sections per year. At that time we will decide if adding new sections or replacing existing sections is the best plan.

How students will benefit
Students who need a science requirement will benefit by having more choices. *Introduction to Pacific Northwest Geology* will teach students about their local environment and 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. National awareness of natural disasters is at an all time high; Oregon is at high-risk for earthquakes, tsunami, flooding and possibly volcanic activity. Both courses will provide a "real-world," practical context for learning geoscience concepts.

Section II: Linking Planning to Budgeting

4. Describe the resources needed

50 hours of curriculum development for *Introduction to Pacific Northwest Geology*	$1,322
50 hours of curriculum development for *Natural Disasters*	$1,322
OPE	$1,063
TOTAL	**$3,707**

5. List the possible funding sources
General fund, curriculum development.

Funding a portion of this initiative will enable us to begin the process of developing the new courses. One of the courses could be funded without funding the other course. Another alternative would be to augment OISS curriculum funding with some of the EES tuition-based curriculum funding to fully support course development.

6. **Provide ORG & PROG codes**
ORG = 691500 and PROG = 111000

7. No advisory committee

Science Division Unit Plan 2005-2006
Curriculum Development Initiative

Section I: Planning

1. Initiative Title: Curriculum Development, 200 Level Physics, Physics Discipline

Division Priority Tier #1

Curriculum Development for creation of current, scalable 200-level physics courses

2. How is the initiative linked to your Program Outcomes Analysis for last year? What program level outcomes do you expect to achieve?

Last year it was pointed out that, among other things, Physics does not have the resources, staff, and institutional support

(1) to meet more than 1/5 of the needs of students majoring in science,
(2) to create conditions to serve in comparable proportions female and male students,
(3) to fully incorporate basic research-validated pedagogical reforms,
(4) to be optimally aligned with OUS schools, professional-technical programs, mathematics courses, and other science classes,

This initiative directly addresses the above outcomes. In particular, the initiative will make major progress in serving more than the currently served 15% of students with declared science and math majors that need to take 200-level physics. To accomplish this, curriculum, including the infrastructure for it, must be created that can be scaled to two and three times (or more) the number of sections that we currently offer. In addition, our current curriculum does not fully incorporate basic research-validated reforms in physics education, and this would be accomplished by this initiative.

3. Describe the initiative

- *How does this initiative align with the strategic directions of the college?*
  It better serves the learning needs of significantly more students, thus contributing to more effective learning and enrollment growth.

- *What will the product, innovation, or change of this initiative be? Please be as specific as possible.*
  The curriculum development will establish curriculum for 200-level physics courses, incorporating basic research-validated pedagogical reforms in a permanent form that can be scaled up and efficiently improved upon. The work products include (1) course syllabi and outlines, (2) class activities and work sheets, (3) labs and lab work sheets, (4) online resources, (5) assessment tools and (6) equipment guides and inventory organization that is accessible and can be practically implemented by part-time and full-time faculty. Further, the curriculum will be sufficiently delineated so that results from assessment tools and discipline discussion can move the curriculum ahead as more is learned.

- *What is the need or intended use? How was that need assessed? What is your evidence of the need?*
  The need is three-fold. First, our current curriculum has yet to fully implement proven physics education reforms. The value of these reforms is based on education research using experiences of up to tens of thousands of students at colleges and universities of all types in the US and increasingly, internationally. The lead physics faculty member, who is familiar with these reforms, is aware from his observation and discussion among faculty members that these reforms are not fully implemented at Lane. Second, for a sophisticated curriculum to be used for significantly more course sections, it must be scalable; that is, it must be practical for faculty in many different sections to make use of the same curriculum. Our present curriculum is not scalable in this sense. Part-time faculty members have repeatedly expressed their frustration

with the lack of established curriculum materials and the disorganization of lab and demonstration equipment. Third, efficient and effective improvement of a curriculum used in more than one or two sections requires an established curriculum from which to interpret data collected about student learning, as well as the existence of assessment tools. In the last decade, assessment tools have been developed for 200-level physics classes. Yet without a reasonably defined curriculum, these assessment tools cannot be fully utilized for improving that curriculum, and, in fact, these assessment tools haven't (according to the faculty teaching them) been used regularly at Lane.

- *Given college resources, is it feasible? Is it an efficient use of college resources?*
  Yes, for a number of reasons: (1) The cost is a relatively small amount of money. (2) It leverages tens of millions of dollars spent for physics education research. (3) It is expected that this curriculum development is needed for number of 200-level physics sections to increase significantly, and generally the number of students per section grows as the number of sections grows. (4) More effective use will be made of technology, both through making better use of it, and through economies of scale. (5) The efficiency of carrying out the curriculum and its effectiveness will free up faculty time for other contributions to student learning.

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

- *How many students (per year) will benefit?*
  Currently, about 50 students, on average, take 200-level physics per term, and assuming that these students take 3 terms per year, then that is approximately the number of students who take a full year of it (In '04-05, fall = 50, winter = 53, spring = 42). According to data collected by IRAP and included in last year's Unit Plan, there are at any one time approximately 780 students are declared science/math majors who need to take 200-level physics. If they are at Lane an average of 2 years, then approximately 390 would need to take 200-level physics at Lane, if that were where they took it. Since every student will benefit from these changes, the number to benefit is estimated to be between 50 and 390 per year.

- *How will students benefit?*
  Students will benefit in a number of ways: (1) Tested and validated reforms will be integrated into the curriculum in their physics classes. Their learning can be expected to increase. (2) Based on students' experience at Lane, improvements will be more easily identified and implemented in the coming years. Students will benefit from these improvements, primarily by learning better. (3) More classes per term and availability during different terms will give students more flexibility and will allow some students to complete their physics classes sooner. (4) More students will be served at Lane giving them access to a high quality learning environment at generally lower cost than they would currently experience at OUS schools.

Section II: Linking Planning to Budgeting - If you need Resources:

4. Describe the resources needed

400 hours of curriculum development.

400 hours x $26.44 = $10,576 Salary, $4,252 OPE @ .402, Total = $14,828

5. List the possible funding sources

- *Can this project be partially funded?*
  Specific 200-level courses could be targeted.

- *If so, what portion could be funded at what minimum cost?*

Since there are 6 terms involved, but some curriculum development work is common to all, 100 hrs is a minimum number of hours. (Note this assumes the usual division sponsors curriculum development remains for use in other areas of curriculum development much in physics.)

6. Provide ORG & PROG codes

ORG = 691600 and PROG = 111000

Science Division Unit Plan 2005-2006
Curriculum Development Initiatives

Section 1: Planning

1. Initiative Title: Curriculum Development, Physics Discipline

Division Priority Tier #2

A. Provide students with an updated, enhancement of current curriculum.

Part A. of this initiative aims at completing a backlog of curriculum updating and enhancements to existing courses aimed at meeting proven student needs. Due to understaffing and the complexity of the discipline there are significant needs, which are listed below:

Course affected	Curriculum Development Project	Hours needed	Cost
PH 101,2,3	Create special versions of this series for teachers in the evenings, with activities built around labs, classroom demonstrations, and current benchmarks for science literacy teachers deal with.	200	$7,414
ASTR 107	Prepare for the new telecourse version of this class, following the change in course by the vendor.	60	$2,224
ASTR 122	Create the traditional partner courses ASTR 121 (the solar system) and ASTR 123 (the large-scale structure of the universe and cosmology).	50	$1,853
ASTR 122	Create optional, then permanent, laboratory options for ASTR 121,2,3.	100	$3,707
ASTR 107, ASTR 121,2,3	Develop/identify extensive web-based resources for use in the all astronomy classes.	100	$3,707
PH 091,2 PH 101,2,3 ASTR 121,2,3 ASTR 107	Identify and integrate specific calculations, concepts, and problems for enhancing and defining the appropriate math prerequisites to better serve physics students – a collaborative effort by Physics and Mathematics	40	$1,483
Total		**550**	**$20,388**

Costs figured at $26.44 per hour, OPE rate @ .402

B. Provide students with new kinds of courses to meet needs beyond the current curriculum

Part B aims at enhancing the overall curriculum by adding different kinds of courses, based on needs of current and potential students. Given the understaffing and complexity of the discipline, a significant unmet need has accumulated, and is listed below.

Course # (tentative)	**Curriculum development project**	**Hours needed**	
PH 111	Applied Physics Calculations (passed through division and stakeholder process), a two-credit course to be taken along with PH 91,2; GS 104; PH101,2 that will provide science credit and if completed with an A or B will provide the student with an alternate pathway into Math 95.	100	$3,707
PH 141	Meteorology, a course to be developed in concert with Robert Thompson, who explored such a course during his sabbatical	100	$3,707
GS 151	Origins, a multidisciplinary science course organized around the theme of descriptions and explanations of origins offering a sampling of science topics, led by a selection of science faculty.	100	$3,707
GS 152	Motion, a multidisciplinary science course organized around the theme motion offering a sampling of science topics, led by a selection of science faculty.	100	$3,707
GS 153	Endings, a multidisciplinary science course organized around the theme of descriptions and explanations of endings offering a sampling of science topics, led by a selection of science faculty.	100	$3,707
PH 100	Reading Physics, a non-credit reading group of popular lay physics literature. Would require a physics course prerequisite or permission of instructor.	20	$742
PH 131	Physics of Light and Color, a course developed with Art faculty.	100	$3,707
PH 132	Physics of Sound and Music, a course developed with Music faculty.	100	$3,707
PH 210	Physics Modeling Lab	20	$742
Total		**740**	**$27,433**

Costs figured at $26.44 per hour, OPE rate @ .402

VP/AVP/ED Responsible	Division/Unit	Division Priority	Date of Initiative	Expected completion date	Initiative Title	Resource Description	$$	Recurring / Nonrecurring	Resource Type (mark with an "X")				Funding Sources (mark with an "X")						
									Payroll	Equipment	Space	Other	Existing	New Gen Fund	Carl Perkins	Stud Tech Fee	Curr Dev	Recruitment	Other
	GENERAL FUND																		
PL	Science / Anatomy & Physiology	1			New Faculty to Sustain & Improve Instruction to Meet Student Learning Needs in Anatomy & Physiology	One full-time faculty	$24,254.00	R	X				X	X					
PL	Science / Biology	1			New Faculty to Sustain & Improve Instruction to Meet Student Learning Needs in Biology	One full-time faculty	$24,254.00	R	X				X	X					
PL	Science / Earth & Environmental Science	1			New Faculty to Sustain & Improve Instruction to Meet Student Learning Needs in Earth & Environmental Sciences	One full-time faculty	$24,254.00	R	X				X	X					
PL	Science / Earth & Environmental Science	1			Administrative & web site assistance for EES	Timesheet, 180 hrs	$7,400.00	R	X					X					
PL	Science / Physics	1			New Faculty to Sustain & Improve Instruction to Meet Student Learning Needs in Physics	Two full-time faculty	$48,500.00	R	X				X	X					
PL	Science / Physics	2			Remodeling Physics Rooms		?	N			X			X					
PL	Science / Support Staff	1			Science Instructional Support for Technology	Two 1.0 FTE Information Technology Specialists	$50,906.00	R	X				X	X					
PL	Science / Support Staff	1			Life Science Laboratory Instructional Support	1.0 FTE Instructional Specialist	$23,055.00	R	X				X	X					
PL	Science / Support Staff	1			Science Resource Center Student Support Project	.75 FTE Instructional Support	$17,804.00	R	X				X	X				X	

VP/AVP/ED Responsible	Division/Unit	Division Priority	Date of Initiative	Expected completion date	Initiative Title	Resource Description	$$	Recurring / Nonrecurring	Resource Type (mark with an "X")				Funding Sources (mark with an "X")						
									Payroll	Equipment	Space	Other	Existing	New Gen Fund	Carl Perkins	Stud Tech Fee	Curr Dev	Recruitment	Other
	CARL PERKINS																		
PL	Science / Anatomy & Physiology	1			Educational Support for Future & Current Family & Health Career Students & curriculum development to support the conversion of Human Anatomy & Physiology sequence & Introductory Microbiology course (BI 231-234) from 4 to 5 credits	Curriculum Development (144 hrs @ $26.44 + OPE)	$5,351.00	N	X						X		X		
PL	Science / Anatomy & Physiology	1			Educational Support for Future & Current Family & Health Career Students & curriculum development to support the conversion of Human Anatomy & Physiology sequence & Introductory Microbiology course (BI 231-234) from 4 to 5 credits	Equipment	$14,445.00	N		X					X				
PL	Science / Physics	1			Creation of Physics courses on Transducers: Transducers in Medicine, Transducers in Manufacturing, & Transducers in Environmental Monitoring	Curriculum Development (300 hrs)	$11,121.00	N	X						X		X		
PL	Science / Physics	1			Creation of Physics courses on Transducers: Transducers in Medicine, Transducers in Manufacturing, & Transducers in Environmental Monitoring	Equipment	$7,000.00	N		X					X				
PL	Science / Physics	2			Curriculum Development/Equipment for Principles of Technology, PH 091 and PH 092	Curriculum Development (60 hours)	$2,224.00	N	X						X		X		
PL	Science / Physics	2			Curriculum Development/Equipment for Principles of Technology, PH 091 and PH 092	Equipment	$4,561.00	N		X					X	X			
PL	Science / Support Staff	1			Science Part-time Instructional Support for Technology	Two 0.5 FTE Technology Specialists	$42,638.00	N	X							X			
PL	Science	1			Science Division Technology Maintenance	Student Workstations & Infrastructure Maintenance	$25,062.00	N		X		X				X			
PL	Science	1			Replacing & Upgrading Student Computers in Science Classrooms & Resource Room	PCs and Mac Computers & Monitors	$130,200.00	N		X		X				X			
PL	Science / Chemistry	1			Portable Classroom Computing Laboratory	Cart w/laptops, wireless hubs, printer	$51,275.00	N		X						X			
PL	Science / Biology	2			GPS Receivers	18 GSP Receivers	$3,955.00	N		X		X				X			
PL	Science / Physics	1			Funding for Physics Data Acquisition Hardware	14 LabPro Physics Pkgs	$11,732.00	N		X						X			
PL	Science / Physics	2			Equipment for Principles of Technology PH 091, PH 092	7 sets of Sensors & TI-Presenter	$4,561.00	N		X						X			

VP/AVP/ED Responsible	Division/Unit	Division Priority	Date of Initiative	Expected completion date	Initiative Title	Resource Description	$$	Recurring / Nonrecurring	Resource Type (mark with an "X")				Funding Sources (mark with an "X")						
									Payroll	Equipment	Space	Other	Existing	New Gen Fund	Carl Perkins	Stud Tech Fee	Curr Dev	Recruitment	Other
	CURRICULUM DEVELOPMENT																		
PL	Science / BioBonds	1			Develop Effective Program Assessment, to Create Shared Activities that Integrate CH 112 & BI 112, to Align the Topics of These Two Courses & to Build Organizational Capacity of this Learning Community	200 hrs Curr Dev	$6,672.00	N	X								X	X	
PL	Science / Biology	2			Expand Course Offerings in Biology: Implement the development of curriculum for a BI 103, on-majors on-line course entitled "Evolution & the Diversity of Life"	100 hrs curr dev pay	$3,707.00	N	X								X		
PL	Science / Biology	2			Expand Course Offerings in Biology: Implement the development of curriculum for a BI 103, on-majors on-line course entitled "Evolution & the Diversity of Life"	Equipment	$1,500.00	N		X						X			
PL	Science / Chemistry	1			Curriculum Development for Introduction to Organic Chemistry (CH 105) & Introduction to Biochemistry (CH 106) revisions	200 hrs curr dev pay	$7,414.00	N	X								X		
PL	Science / Chemistry	2			Curriculum Development for CH 111 Forensic Chemistry, new course	100 hrs curr dev pay	$3,707.00	N	X								X		
PL	Science / Earth & Environmental Science	1			Expand Course Offerings in Earth & Environmental Science	100 hrs curr dev pay	$3,707.00	N	X								X		
PL	Science / Physics	1			Creation of Current, Scalable 200-Level Physics Courses	400 hrs curr dev pay	$14,828.00	N	X								X		
PL	Science / Physics	2			A: Provide students w/updated, enhancement of current curriculum and B: Provide students w/new courses to meet neeeds beyond current curriculum	Part A: 550 hrs curr dev pay	$20,388.00	X	X								X		
PL	Science / Physics	2			A: Provide students w/updated, enhancement of current curriculum and B: Provide students w/new courses to meet neeeds beyond current curriculum	Part B: 740 hrs curr dev pay	$27,433.00	X	X								X		