

Department Plan 100211
Long Beach City College
Dept - Life Science

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Mission: The department has a multi-fold mission of (1) transfer preparation; (2) preparing students to attain an associate degree; and (3) helping students satisfy biological science prerequisite requirements for various programs at LBCC and other colleges. Students who have matriculated through our programs will be exposed to the scientific method, gain an appreciation for the environment, understand health issues in society, and become aware of the positive roles of science in our lives. Our courses will also help them become better "consumers" of scientific information and increase awareness of their personal health. We also hope to motivate students to engage the community through volunteer work with programs at the Nature Center, with the National Audubon Society, and at the Aquarium of the Pacific.

Description: This department consists of two areas: Life Science and Health Education. Life Science courses that are offered include General Biology, Anatomy, Physiology, Microbiology, Wildlife Biology, and Marine Biology. Various field biology courses are also offered. The Health courses offered included Introduction to Human Health, Contemporary Health Problems, Human Sexuality, Men's Health Issues and Women's Health Issues. Courses in the biology portion of the Life Sciences department satisfy prerequisites for biological sciences bachelor's degrees, registered nursing, licensed vocation nursing, radiology, physical therapy, dental hygienist, paramedic, and physician assistant programs. In addition, the biology and health education courses fulfill the science requirement needed for transfer to a 4 year college or university. Lastly, both the life science and health education courses fulfill the requirement for the completion of an associate degree.

Summary of Access, Life Science and Health Education Effectiveness:

Productivity &

Effectiveness: Based on the program data, there has been an overall increase in success rate, retention rate and completion rate over a 3 year academic period (05-06 thru 07-08) as indicated by the data below.

Success Rate: 54.5% to 57.3%
Retention Rate: 71.5% to 73.5%
Completion Rate: 63.7% to 66.2%

In addition class size average has increased from 2007 to 2008 (45.6 to 47.6). The overall program load of the Life Science Department is significantly greater than the college-wide average. In 2008, the Life Science WSCH/FTE was 740. The college wide WSCH/FTE was 481.

The data above supports the fact that the Life Science department is serving more students every year.

Internal Conditions (see Help for list): We currently have six high demand classes in the biological sciences: Anatomy 1, Anatomy 41 (anatomy and physiology), Physiology 1, Biology 2 (microbiology), Biology 41/41L (general biology), and Biology 60 (introductory anatomy and physiology lecture). BIO 41 and 41L are taken to satisfy a general education science requirement. Many of the students enrolled in Anatomy 41 are preparing to enter the Diagnostic Medical Imaging program. The other three classes primarily enroll pre-nursing students (both vocational and registered). A lack of additional laboratory space limits our ability to offer additional sections of ANAT 1, ANAT 41, PHYSI 1, and BIO 2. Based on waiting list numbers, we could easily enroll students in at least 5 more ANAT 1 sections, 4 more BIO 2 sections, 4 more PHYSI 1 sections and 2 more ANAT 41 sections. We also have difficulty finding adjunct faculty members for these classes, especially for microbiology.

We have recently hired a faculty member who specializes in teaching microbiology. We had 11 retirements within the last 8 years; of these, 6 faculty taught general non-majors biology. We have only hired two new faculty members as replacements. Because of the shortage in faculty, we have been unable to teach many of our field biology courses and Botany. There has been a 30% drop in sections/courses of general biology within the last 8 years. We will continue to ask the Hiring Priorities Committee to approve our request for an additional faculty member who can teach general biology courses. This position is important because students take an initial Biology course, become interested in the field and we have only a couple of additional courses for them to select from. These courses have waiting lists and students may look at other colleges for courses. Diversity is currently lacking in our offerings. We believe we could attract more students to the STEM pathway if we could offer our full complement of courses. We also have been asked repeatedly by the Horticulture program to offer a general Botany course for their students.

We need one additional laboratory room, properly equipped, and one single-sized lecture room with tables and chairs to increase our high demand class offerings. Our facility constraints may become more problematic when

we transition to a 16 week semester. Class time will increase by 20 -35 minutes per meeting and this may decrease the number of sections that can be offered. An additional single-sized lecture classroom with tables and chairs would help us utilize our facilities more effectively.

Our laboratory classrooms contain ill-constructed wooden chairs that have bendable backs. As the back support bends, the chairs become inherently unstable and students fall backwards in them. The chairs also only have four casters instead of the current standard of five. On average, two students fall from these chairs in every class per semester and it is just a matter of time until a student suffers a serious injury. We are continually sending these chairs to the warehouse for disposal and need replacement chairs.

A revised Biology 41L curriculum is currently being implemented. Thirteen sections of this lab class are taught every semester. The room does not have a dedicated instructor computer with internet access. The instructors need this equipment for the revised labs. This hardware also needs to be interfaced with the existing ceiling projection systems. A request for a computer has been submitted to MESS.

The availability of student workers has decreased dramatically. Our student workers help in our Life Science stockroom and are responsible for dishwashing, labeling of materials, material inventory and other tasks essential for the presentation of our laboratory sections. Historically, we have had 7-8 student workers per semester. Two years ago we had 5, and last year we had only 3. This year, we have started out with 5 but expect some students to leave mid-year. There were no student workers last summer. We need more student workers in order to support our lab classes. There are 42 lab sections scheduled for Spring 2012; the student workers are essential for coordination of our laboratory activities.

External Condition- Industry & Labor Market Trends: Demand for classes in the health professions has always been high and labor market data suggests that the available newly degreed workers will not meet the demand.

Because of the current economic situation, many people have returned to school to start or complete classes allowing them to obtain jobs or advance in the medical field. This interest has led to a very high demand for many biology classes (see the list above). These classes have large waiting lists which have persisted even though additional class sections have been added.

External Conditions- Other :

Faculty & Staff : Currently 12 full-time faculty, 23 part-time faculty, 4 full-time classified staff, 1 part-time (40%) classified staff member, and 5 student workers.

Names & Titles of Program Review Participants: Joan Zuckerman, Professor and Dept. Chair; Heather Dy, Anatomy/Physiology Instructor; Jennifer Musick , Associate Professor; Dave Gayle, Anatomy/Physiology Instructor; Grace Pokorny, Associate Professor; Dan Ripley, Associate Professor; Dan Nigro, Associate Professor; Chris Davison, Associate Professor; Diep Burbridge, Anatomy/Physiology Instructor.

2009-2010 Accomplishments: Two new Biology 41 labs were piloted in Summer 2010. These labs will be fully implemented into the curriculum in Fall 2010.

Supplemental Learning Assistance workshops were piloted for two Physiology 1 sections in the Spring 2010 semester. These workshops will be extended to all Physiology 1 sections for the 2010-2011 school year. Biology 20 and 30 became web-enhanced. HLED 3, 4, 5, and 10 have also become web-enhanced. Additional sections of HLED 3 are being offered by distance learning.

2010-2011 Accomplishments: Five new Biology 41 labs have been revised and are being taught; five more are awaiting revision. An adjunct faculty guide has been completed and portions have been adopted by other campus groups. Physiology workshops have been implemented in all of the sections of the course. Anatomy 41 is currently requiring directed learning activities in all sections taught.

Goal: Cross Train Probationary Life Science faculty

Probationary Life Science faculty will be scheduled to teach a variety of courses within anatomy and physiology. This will broaden the availability of full time faculty that can teach high demand courses. The course sections include ANAT 1, ANAT 41, BIO 41, BIO 60, and PHYSI 1. Microbiology (BIO 2) has been intentionally omitted. This course requires specialized expertise that most biologists do not have.

Year: 2009 - 2010

2010 - 2011

2011 - 2012

Start Date: 08/14/2009

End Date: 06/01/2012

Goal Status: Complete

Goal Priority: High

Rationale: Wait lists continue to increase for courses that are prerequisites for vocational programs and that fulfill transfer requirements. In order to accommodate this growing need, additional sections need to be offered. Increasing the pool of full time faculty that can teach ANAT 1, ANAT 41, PHYSI 1, BIO 60, BIO 60L and BIO 41 courses can help to alleviate this need.

Strategies: Probationary full time faculty will be scheduled to teach at least 2-3 different courses a semester. This course rotation began in the Fall 2009 semester. By the end of the Fall 2012, all probationary faculty should have rotated through all the courses listed above. This goal is contingent upon budget limitations.

Responsible Parties: Probationary full time faculty

Campus supported by this Both

goal:

Specify if goal is for Department/ Program

department or sub-area:

Other Area impacted by this Other

goal:

Level of Support Needed: Department

Goal: Web-enhancement of Health Education courses

We plan to make all 3-unit Health Education courses web-enhanced with some or all of the following features: access to course syllabi, relevant web links, homework updates, access to grades.

Year: 2011 - 2012

Start Date: 08/14/2009

Goal Status: Complete

Goal Priority: High

Rationale: The addition of web-based technology to our courses fosters student success and retention by increasing access to important course-related information. All 3-unit Health Education courses satisfy the Area E requirement; thus, this goal supports successful transfer for our students.

Strategies: Full-time Health Education faculty members will complete the necessary training to create websites for their courses.

Responsible Parties: Full-time Health Education faculty members (Jennifer Musick, Grace Pokorny, and Dan Ripley))

Campus supported by this Both

goal:

Specify if goal is for Area of Concentration

department or sub-area:

Name of sub-area, if Health Education (sub-area of Life Science Department)

applicable:

Other Area impacted by this Faculty Resource Center (FRC)

goal:

Level of Support Needed: Department

Related Resources Needed

* Resources Needed Name: Web-enhanced courses

Resources Needed A course management system and/or course website creation software/program may be needed.

Description:

Inter-Level/ VP Level Group Pending

Decision:

Fiscal Year: 2011 - 2012

Duration: On-going

Estimated Cost: 0.0000

Type of Resource 438000 - Software Instructional

Requested:

Justification for Resource Full-time instructors will need initial training and on-going access to an on-line course management system

Request: and/or course website.

Department Code: 040100 Life Science

Goal: Revise Biology 41 Lab curriculum

The lab protocols utilized for the Biology 41 Lab are being revised due to changes in the discipline and the need for more student engagement.

Year: 2011 - 2012

Start Date: 08/14/2009

Goal Status: In Progress

Goal Priority: High

Rationale: The present curriculum is outdated and lacks many hands-on and interactive activities. Completing this goal will retain and insure currency in the BIO 41 lab.

Strategies: A department committee is meeting regularly (usually weekly) to assess current curriculum, identify needs, and design new curriculum.

Responsible Parties: Dan Nigro, Chris Davison, Diep Burbridge, Liz Nash

Campus supported by this goal: Both

Specify if goal is for Department/ Program
department or sub-area:

Other Area impacted by this goal: Faculty Resource Center (FRC)

Other Area(s) impacted by this goal: ITDC

Level of Support Needed: Department

Related Resources Needed

* Resources Needed Name: Materials needed for revised lab experiments

Resources Needed The BIO 41L course revisions will require new materials to support the addition of interactive experiments.

Description:

Inter-Level/ VP Level Group Not Approved

Decision:

Fiscal Year: 2011 - 2012

Duration: One-time

Estimated Cost: 5000.0000

Type of Resource 432000 - Supplies Instructional

Requested:

Justification for Resource The revised lab experiments will require the use of additional materials for student use.

Request:

Department Code: 040100 Life Science

* Resources Needed Name: Microscope purchase

Resources Needed Many of the microscopes used for this course are old or hand-me-downs from other lab courses. Every semester

Description: a number of microscopes are deemed to be no longer repairable and are kept for parts. The number of microscopes available for student use is shrinking and close to a critical level. The estimated price quoted is for 10 new microscopes; we actually need 35 replacement microscopes.

Inter-Level/ VP Level Group Pending

Decision:

Fiscal Year: 2012 - 2013

Duration: Both (i.e., initial & maintenance costs)

Estimated Cost: 18000.0000

Type of Resource 640000 - Equipment

Requested:

Justification for Resource Several labs experiments require the use of microscopes and these labs are important for the course, allowing

Request: students to connect activities to important concepts

Department Code: 040100 Life Science

Goal: Integrate Biology 41 lecture and lab curricula

Develop continuity between the lecture and lab curricula in the Biology 41 course.

Year: 2009 - 2010

2010 - 2011

Start Date: 08/14/2009

Goal Status: In Progress

Goal Priority: High

Rationale: To improve continuity of learning for the majority of students who take both the lecture and lab in the same semester.

Strategies: A department committee will assess the degree of continuity among the various lecture and lab sections. Lecture and laboratory topics will be organized accordingly.

Responsible Parties: Dan Nigro, Chris Davison, Diep Burbridge

Campus supported by this goal: Both

Specify if goal is for Department/ Program
department or sub-area:

Level of Support Needed: Department

Goal: Initiate activities required for the opening of the PCC BIO 41 Lab

Plans for a science lab at the Pacific Coast campus have been finalized and construction will be starting in Spring 2010. Much planning and purchasing of equipment is needed to ensure that the classroom is up and running by the Fall of 2011, based on the estimated completion date of Summer 2011. Construction delays may push the opening of the lab to Spring 2012.

Year: 2009 - 2010
2010 - 2011
2011 - 2012

Start Date: 08/14/2009

Goal Status: In Progress

Goal Priority: High

Rationale: To properly equip and support the new lab so that the consistency and quality matches that of the classes offered at the LAC facility.

Strategies: It will be a significant expense to equip this PCC laboratory facility. Initially, a list of necessary materials needs to be compiled and the costs estimated. Materials need to be ordered and a space separate from the D building stockroom needs to be available to store the materials. The classroom needs to be set up and maintained by an Biology instructional Specialist, preferably a newly hired part-time classified person who could be present when classes are in session and would be responsible for setting up and tearing down the labs.

Responsible Parties: Joan Zuckerman (Department chair) and Michael Vasquez (Biology Instructional Specialist)

Campus supported by this PCC

goal:

Specify if goal is for Department/ Program

department or sub-area:

Other Area impacted by this Facilities

goal:

Other Area(s) impacted by Purchasing

this goal:

Related Resources Needed

* Resources Needed Name: Hiring a Biology Instructional Specialist for the PCC Laboratory and Life Science Learning Center

Resources Needed Construction of the PCC general biology laboratory will require the hiring of a Biology Instructional Specialist to set up and tear down the lab experiments. This person would be present while the labs are in session to help the instructors with any needed materials and to insure that solutions are refilled, etc. before each lab section. This person could also work an evening shift in the Life Science Learning Center at the LAC, allowing the Center to remain open for extended hours.

Inter-Level/ VP Level Group Pending

Decision:

Fiscal Year: 2011 - 2012

Duration: On-going

Estimated Cost: 70000.0000

Type of Resource 220000 - Classified Monthly Instructional

Requested:

Justification for Resource Currently, Life Science classified staff are busy with their activities at the LAC. There are no staff at the PCC. A classified staff member needs to be assigned to maintain the PCC laboratory. This person could also work in the Life Science Learning Center in the late afternoon and evenings, allowing us to extend the hours of the facility. The Center experienced over 3000 visits by over 800 students in the Spring 2009 semester. Spring 2009 statistics are shown in documents attached to this report.

Department Code: 040100 Life Science

* Resources Needed Name: Microscopes for the new lab facility

Resources Needed New microscopes will be needed for the new lab facility. The department does not have enough working microscopes to equip this lab.

Inter-Level/ VP Level Group Pending

Decision:

Fiscal Year: 2011 - 2012

Duration: Both (i.e., initial & maintenance costs)

Estimated Cost: 40000.0000

Type of Resource 640000 - Equipment

Requested:

Justification for Resource In order to provide the same quality of instruction, the PCC laboratory will require the purchase of at least 25 new microscopes.

Department Code: 040100 Life Science

Goal: Increase Instructional Aide Support for the Life Science Learning Center

Hire an additional part-time (40%) instructional aide to supervise the Life Science Learning Center during evening hours. This position would be an much less expensive option than hiring an additional Biology Instructional Specialist to help extend the hours of the Learning Center.

Year: 2011 - 2012

Start Date: 08/14/2009

Goal Status: In Progress

Goal Priority: Medium

Rationale: Increasing the instructional aide support would directly increase the number of hours the Life Science lab would be available to students. This would accomodate the increase in student usage. The end result could lead to an overall improvement in student success and retention. The Life Science Learning Center has been keeping ststistics on student use via TutorTrak. In Spring 2009, over 3000 visits were made to the center by over 800 students. Many students have commented that the Center needs to be open after 6:30 pm to better accommodate the needs of working students. We will be surveying our students to estimate their interest in extended service hours.

Strategies: An evaluation of the number of students and the frequency of use will be monitored using the Tutor track software.

Responsible Parties: Department Chair; Life Science Faculty, Full & Part-time

Campus supported by this LAC

goal:

Specify if goal is for Department/ Program

department or sub-area:

Level of Support Needed: School or VP

Related Resources Needed

* Resources Needed Name: Salary for additional instructional aide support

Resources Needed Funding is needed to support a new life science instructional aide who will staff the Life Science Learning Center.

Description:

Inter-Level/ VP Level Group Pending

Decision:

Fiscal Year: 2012 - 2013

Duration: On-going

Estimated Cost: 30000.0000

Type of Resource 230000 - Classified Hourly Non-Instructional

Requested:

Justification for Resource As the availability of the Supplemental Instruction program decreases, students need an alternative study

Request: resource. The Life Science Lab offers additional study time outside of scheduled course time. In addition, TutorTrak data shows an significant usage of this facility. The facility needs to be open in the evening to support working students.

Department Code: 040100 Life Science

Goal: Upgrading of our projection system equipment to display microscopic images

Students have problems with recognition and interpretation of structures seen in microscopic images. We can increase their learning experience and encourage more student interaction by the projection of images to all students within in the classroom. Our classrooms are all technology enhanced but lack the necessary equipment to demonstrate and display microscopic images.

Start Date: 08/01/2010

Goal Status: NEW

Goal Priority: High

Rationale: In our Anatomy 1 and 41 classes, students are tested early in the semester on their recognition of specific cells and tissues. Many students have difficulty with this and do poorly on the exam. Poor performance on the first exam discourages some students and affects their subsequent performance. The use of microscopes is also integral in BIO 1A, 1B, 20, 30, 41L, 60L and in PHYSI 1. Students enrolled in these courses would also greatly benefit from access to images. Thus, microscope image projection technology would have widespread use and impact most of the students taking courses within the Life Science Department.

Strategies: Some research has already been done to evaluate possible technology. The best solution is to make available a portable compound and a portable dissecting microscope that can be used in any classroom, as needed. The microscopes would be used by the instructor to demonstrate materials. A dissecting microscope would be used to examine biological specimens such as feathers, plants, invertebrates, etc. in classes such as BIO 1B, 20, 30, and 41L, whereas a compound microscope would be used to examine cells and tissues in classes such as ANAT 1, 41, BIO 1A, 1B, 20, 30, 41L, 60L, and PHYSI 1.

The microscopes would also be equipped with digital cameras. Photographs of materials could be shown in the classroom, or made available on the internet and at the Life Science Learning Center.

We have received a quotation for two microscopes, equipped with digital cameras and software to manipulate

the images. The cost is approximately \$7, 500.

Responsible Parties: Joan Zuckerman, Dan Nigro

Campus supported by this Both

goal:

Specify if goal is for Department/ Program

department or sub-area:

Level of Support Needed: School or VP

Goal: Orientation for New Adjunct Faculty

We will produce an orientation document (with check off sheet) to help acclimate Adjunct Faculty to the LBCC facilities layout, required procedures, and expected duties. Each new faculty member will be further instructed on specified responsibilities inherent to the Life Science Department and expectations based on course assignment.

Year: 2010 - 2011

Start Date: 08/01/2010

End Date: 05/23/2011

Goal Status: Complete

Goal Priority: High

Rationale: Adjunct Faculty need mentoring and orientation to give them ability to function at Long Beach City College with confidence and knowledge of the operations that take place on campus. The document will include departmental and even individual course operational information to allow the instructor to facilitate a learning environment from the position of knowledge and awareness. This goal is expected to equate to increased student retention.

Strategies: Full-time faculty members will complete the document and determine how to make it operational.

Responsible Parties: John Downey, Dan Nigro, Diep Burbridge, and Heather Dy

Campus supported by this Both

goal:

Specify if goal is for Department/ Program

department or sub-area:

Level of Support Needed: Department

Goal: Resume general biology course availability

Our department is offering 30% less general biology courses than 8 years ago due to faculty retirements. We would like to resume offering many of these courses.

Year: 2011 - 2012

Start Date: 09/01/2010

End Date: 06/07/2013

Goal Status: In Progress

Goal Priority: High

Rationale: With 11 retirements in 8 years, our department is at an all-time low in faculty numbers. Of these 11 retired faculty, 6 taught a variety of general biology and field biology courses. Only 2 of our new hires have the expertise to teach these courses. One of the courses is Botany, which has not been offered in 3 years. Horticulture students regularly call and ask if we are planning to offer the course.

We have had difficulty finding adjunct biology faculty who have field or botany experience.

Strategies: We will continue to request the hiring of a general biologist through the Hiring Priorities Committee.

Responsible Parties: Joan Zuckerman,

Specify if goal is for Department/ Program

department or sub-area:

Level of Support Needed: School or VP