Chaffey College Program Review
Three Year Review 2011

PROGRAM OVERVIEW

Program Title: Biology

Program Code: 401 - BIOLOGY

Review Type: Instructional

Does this review contain any career technical education (occupational) programs?
No

External Regulations:
No

Chaffey College Mission Statement

Chaffey College improves lives within the diverse communities it serves through equal access to quality occupational, transfer, general education, and foundation programs in a learning-centered environment where student success is highly valued, supported, and assessed.

Please describe how your program supports the college's mission and discuss how your program evaluates its effectiveness in meeting the college mission:
The Biology department curriculum has three main paths: transfer curriculum for biology major students, transfer curriculum for general education requirements, and pre-allied health support programs. About 15 percent of our Biology class sections are focused on Biology majors. About 30% of our courses are general education courses, which meet the need for life science with and without a laboratory for the majority of Chaffey College students. Our pre-allied health support courses serve students who seek further training in health-related occupational programs (X-ray technician, Certified Nurse Assistant, Licensed Vocational Nurse, and Associate Degree Nurse) and make up about 55% of our class sections. As a means of supporting student learning our department offers special open lab hours throughout the week for students to be in their laboratory classrooms and use the specimens and equipment as they study and complete lab work. Another important means of supporting student learning is the use of Supplemental Instruction for some of our classes. Furthermore, the biology department maintains museum quality specimens that support our curricula. These specimens include the dried plants in our nationally registered herbarium, trays of pinned insects, alcohol preserved invertebrates, an extensive taxidermy collection and an
exemplary human and animal anatomy collection. Our living collections contain animals in aquaria, plants and animals in ponds, the lath-house plants, the campus landscaping and the nature preserve. These extraordinary specimens provide a robust set of resources to achieve superior student learning outcomes. (Our department has produced a mapping matrix that links our course SLOs to the physical resources of the campus. Due to space limitations in this document we were unable to include it here. Please contact our department for a copy). The biology department also maintains and dedicates part of its budget to provide a current collection of scientific journals kept in the "Science Library" (ZH 131). Current and former faculty also contribute to the collection through personal donation. These journals are used by students in almost all of our courses. In addition to housing print journals, the science library provides students with computer access, anatomy study supplies, as well as a white board, tables, and chairs to facilitate group study sessions. We assess our program in a variety of ways including monitoring enrollment (many sections fill the first day of registration), and carrying out SLO assessments according to our scheduled plan. As a more informal means of tracking and supporting student success we now have an annual pizza party honoring students who are transferring. We have a Chaffey College Biology Facebook page to keep in touch with students while at Chaffey and when they transfer. We also keep a list of major students who participate in National Science Foundation supported Research Experience for Undergraduates (REU) programs and other summer internships. We take great pride in the accomplishments of our students and many biology faculty contribute to annual scholarships awarded by our department.

**Review Team Response**
Program Overview clearly links to the college’s mission. It illustrates Biology's commitment to equal access and a learning centered environment. It articulates how the program evaluates its effectiveness. Good job!

**PROGRAM DATA**

Enrollment
<table>
<thead>
<tr>
<th>Measure</th>
<th>2008-09 to 2009-10</th>
<th>2009-10 to 2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Census Enrollment</td>
<td>-1.94%</td>
<td>-6.65%</td>
</tr>
<tr>
<td>Day</td>
<td>-2.65%</td>
<td>-3.75%</td>
</tr>
<tr>
<td>Evening</td>
<td>-0.71%</td>
<td>-11.57%</td>
</tr>
<tr>
<td>Online</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Given the data, what changes can be identified in enrollment patterns? Identify any important trends and explain them.
Overall our total enrollment has remained stable considering the reduction of sections due to budget cuts. The slight change does not reflect a statistically significant difference.

Retention
<table>
<thead>
<tr>
<th>Measure</th>
<th>2008-09 to 2009-10</th>
<th>2009-10 to 2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Census Retention</td>
<td>1.7%</td>
<td>2.37%</td>
</tr>
<tr>
<td>Day</td>
<td>1.82%</td>
<td>2.31%</td>
</tr>
<tr>
<td>Evening</td>
<td>1.53%</td>
<td>2.24%</td>
</tr>
<tr>
<td>Online</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Given the data, what changes can be identified in retention patterns? Identify any important trends and explain them.
Retention patterns within the biology course offerings largely reflect that same patterns shown in the college wide data. One slight difference is the decreased retention by females as compared to males. While this difference is very slight (and perhaps not statistically significant) it bears watching in future years. Some members of our department are investigating techniques to overcome the "stereotype threat" often afflicting females in math and science courses. Another difference is the higher retention rates for day time sections relative to evening sections. This may reflect the lack of evening support services such as DPS test taking services, tutoring, full time instructors office hours as well as a lower proportion of evening classes being taught by full time instructors.
Success
### Success Rate by Day, Evening, Online, Arranged (BIOL)

<table>
<thead>
<tr>
<th>Measure</th>
<th>2008-09 to 2009-10</th>
<th>2009-10 to 2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Census Success</td>
<td>2.3%</td>
<td>6.71%</td>
</tr>
<tr>
<td>Day</td>
<td>1.29%</td>
<td>8.78%</td>
</tr>
<tr>
<td>Evening</td>
<td>3.98%</td>
<td>3.22%</td>
</tr>
<tr>
<td>Online</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Given the data, what changes can be identified in student success patterns? Identify any important trends and explain them.

Biology's success rates for all categories are lower than that for the college as a whole. We suspect this may reflect the difficulty of our curriculum for an underprepared student population. This is an area that demands our attention. It may be worthwhile to investigate if we need to add prerequisites or advisory courses that would increase student success in our courses. Some instructors have started to implement active learning in their lectures. The department offered an accelerated 6-week Biology section for students who learn best by immersion. Success increased from 42% to 63% when comparing the accelerated course to the same course by the same instructor last semester at the regular full semester pace.

Review Team Response
Data and trends are interpreted properly. Implications for the program are included. We suggest that program implications for the enrollment data also be included.

DEGREE/CERTIFICATE DATA

<table>
<thead>
<tr>
<th>Term</th>
<th>Degrees</th>
<th>Certificates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Given the data, is the number of majors and certificates what you would expect? Please comment. Has the number of majors and certificates increased or decreased over time? Why?

Biology major students do not complete an AA degree in Biology, rather they prepare for transfer to the university. To qualify for junior and senior level biology coursework upon transfer students need to have completed lower division sequences of math, physics, chemistry and biology which they do while at Chaffey College. This precludes them from finishing their breadth requirements for an AA degree in Biology. Because this is widely known to be the case most local community colleges do not offer an AA degree in Biology. Completing lower division breadth requirements upon transfer also allows the science major to balance the “solid” upper division science coursework with lower division humanities courses.

Review Team Response
Include plans to encourage attainment of more AA degrees. Include plans, if any, to create a transfer AA.

STUDENT LEARNING OUTCOMES
Students will achieve a level of comprehension of human biology, health and disease that prepares them for success in allied health programs.

Students will demonstrate an ability to effectively use and interpret scientific literature.

Distinguish questions that can be addressed scientifically from those that cannot, and identify basic components of the scientific method.

Recognize unifying theories and concepts in biology.

Acquire a mechanistic understanding of biological processes

Students will demonstrate skill in scientific thinking, communication, problem solving and experimental methodology.

Discuss how the number, type, depth, and breadth of the courses support program SLO’s.
Biology offers a reasonable number of G.E., major’s and pre-allied health classes that support program SLOs and offer a diverse selection students may choose from to meet their educational needs and goals. The Biology department has worked to align and link physical resources with SLOs. This helped to clarify how dependent our
program is on physical resources, including outdoor resources (landscaping, ponds, nature preserve, and field trip sites), indoor lab spaces with their equipment and supplies, specimen collections, and the scientific journals in our science library room. The continued development and care of these resources lays the foundation for student educational quality and successful achievement of SLOs. We strive to maintain the exemplary program we have at the Rancho Cucamonga campus as we expand our offerings to the Fontana and Chino biology labs. (For example we want each campus location where we teach anatomy to have some real bones vs. having labs that only have plastic specimens). All course level SLOs are completed and course level SLOs are all included under the umbrella of the program level SLOs.

Discuss how courses in the program articulate with or complement each other.

Our courses are categorized as biology major series, pre-allied health, or GE transfer with lab or without lab. G.E. courses offer students a diversity of courses to choose from while maintaining key themes. Major's classes require an introductory class to be completed prior to other courses, reinforcing student success and preparation. Pre-allied health classes are sequential and provide students with the knowledge and skills necessary to be successful in the subsequent courses.

Discuss how courses in the program interact with other programs on campus (for example: cross-listing, overlapping content, or shared resources).

We have no cross-listed courses. We rely on prerequisites or advisories in math, English, and chemistry for many of our courses. We carefully consult with math, chemistry and physics departments regarding course scheduling so that biology major students or pre-allied health students can enroll in the math, physics, chemistry and biology classes that many of them take concurrently. Our pre-allied health courses (medical terminology, anatomy, physiology, microbiology) prepare students for a diversity of allied health programs. Our courses have overlapping content with the allied health courses. We often introduce concepts that will be refined and expanded in the allied health courses. Use of biological specimens /displays and outdoor resources by various areas commonly occurs and ranges from art courses using the biological specimens for sketches or photography, to other science courses (geology, earth science, geography, and anthropology) that may use our resources. We have a close relationship with anthropology with whom we share the laboratory room DL 101. Additionally, biology courses are required for AA degree or certificates in more than a dozen programs at Chaffey College, from the Biology 1 requirement for Anthropology or Philosophy AA degrees, to the Biol 14 requirement for the AA in Physical Education or Foods and Nutrition. Some of our courses, such as Biol 20 are a requirement for certain certificate programs such as Pharmacy Technician or for AA degree programs such as the ADN program. Biology courses are also requirements in CSU and UC transfer.

How and when has your department assessed Program SLO's and how have you responded to the results?

Every biology course has course level SLOs in concert with program SLOs that are being assessed. Results of assessments are discussed in Biology department meetings in order to share ideas about how to improve assessment results. Program SLOs in our Curriculum Map Grid showing whether these SLOs are introduced, practiced, or mastered in each of our courses have been updated as of April 2011 in anticipation of course offerings we have scheduled for the 2011-2012 school year (see email attachment). Also the Gantt Planning Chart has been updated to show the scheduling of assessments through June 2014 (see email attachment).
**What program or course changes have been made based on the result of the assessed outcome?**
SLO assessments have resulted in the following types of changes: 1) Change in course topics, 2) Change in lab exercises, 3) Change in pedagogy. Many revisions of course content and/or emphasis of course content have been made (e.g., Biology 10 assessment results showed a deficit relative to Biology 1 results in the SLO related to the understanding of the scientific method. Course content was revised to address the deficit).

**Review Team Response**
Overall Program Level Implementation of SLOs is Developmental Plus. Due to a lack of space in the team response box, the SLO Rubric and a detailed reader's report will be emailed to you and your dean.

**Discuss how your services help maintain a high level of student satisfaction.**

**Discuss how you evaluate your effectiveness in meeting students' needs.**

**How and when has your service reviewed or revised SLOs and/or AUO(s).**

**How has your program utilized SLO/AUO assessment results for program improvement?**

**Review Team Response**

**CURRICULUM UPDATE**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Last Modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 424L Anatomy and Physiology Laboratory - Active</td>
<td>03/15/2006</td>
</tr>
<tr>
<td>BIOL 500 Basic Biological Concepts - Active</td>
<td>12/04/2002</td>
</tr>
<tr>
<td>BIOL 12 Introduction to Human Genetics - Active</td>
<td>05/13/2009</td>
</tr>
<tr>
<td>BIOL 30 Beginning Medical Terminology - Active</td>
<td>09/10/2008</td>
</tr>
<tr>
<td>BIOL 16 Bioethics - Active</td>
<td>10/15/2008</td>
</tr>
<tr>
<td>BIOL 424 Anatomy and Physiology - Active</td>
<td>03/29/2006</td>
</tr>
<tr>
<td>BIOL 92A-H Special Topics: Biology - Active</td>
<td>11/30/2011</td>
</tr>
<tr>
<td>BIOL 92LA-H Special Topics Laboratory: Biology - Active</td>
<td>11/30/2011</td>
</tr>
<tr>
<td>BIOL 3 California Natural History - Active</td>
<td>03/04/2010</td>
</tr>
<tr>
<td>BIOL 2 Environmental Biology - Active</td>
<td>03/03/2010</td>
</tr>
<tr>
<td>BIOL 63 Evolutionary Ecology - Active</td>
<td>03/09/2011</td>
</tr>
<tr>
<td>BIOL 22 Human Physiology - Active</td>
<td>02/24/2010</td>
</tr>
<tr>
<td>BIOL 23 General Microbiology - Active</td>
<td>04/06/2011</td>
</tr>
</tbody>
</table>
Courses should be updated every six years; if course updates are due, please describe your plan and timeline for updating courses:
Courses Biol 23, 23L, and 98 ABC have been updated and are currently in the curriculum approval process. Courses Biol 500, 92 A-H and 92 A-H Lab will be updated during Fall 2011. Courses Biol 4 and 90 will be deactivated.

What steps has your program taken to proactively respond to changing and emerging student and community needs?
Advisory Commettees
Develop New Courses/Programs

Briefly explain:
1. STEM summer study group (composed of biology faculty) for analyzing our majors curriculum resulted in developing our new and updated majors courses to be offered starting fall 2011. 2. Faculty are tracking the progress of C-ID and Model Transfer Curriculum. We anticipate that our new majors curriculum will be appropriate for changes adopted at the state level. 3. Revision of Biology AS degree is currently underway and we anticipate changes will facilitate ease of transfer and result in more of our major students earning the AS degree.

Review Team Response
The Biology Program has a plan and a timeline for updating all courses needing updating. The program is taking steps to respond to changing and emerging student and community needs.
Review Team Response

NON-INSTRUCTIONAL PROGRAM INFORMATION

How does your program improve, expand, or support student learning? How do you know?

Describe staff functions and services (these can include diversity, specialties, staff preparation and training, professional activities and committee participation, accomplishments, grants, new programs etc.)

How does your program evaluate its effectiveness?

Review Team Response

STUDENT SUPPORT - ACCESS

How do the services you provide to students facilitate access to learning? (e.g. - admissions applications, payment processing, pre-requisite clearances, assessment testing, adaptive technology, program applications, healthcare, student activities, and other specialized services.)

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>Description of Service</th>
<th>How many students received this service?</th>
<th>Measured with?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>08-09</td>
<td>09-10</td>
</tr>
</tbody>
</table>

Additional information:

Review Team Response

STUDENT SUPPORT - SUPPORT

How do the services you provide to students support student learning? (e.g. 'counseling, orientations, workshops, financial assistance (scholarships, grants, etc'), career assessments, health education, service learning, advisory committees, and other specialized services.)

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>What knowledge, skills, and/or abilities are learned?</th>
<th>How many students received this service?</th>
<th>Measured with?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>08-09</td>
<td>09-10</td>
</tr>
</tbody>
</table>

Additional information:

Review Team Response

STUDENT SUPPORT - OTHER

How do the services you provide to students promote transfer, completion, specialized services, and/or future success? (e.g. graduation ceremony, CSU/IGETC certifications, university transfer, securing...
employment, transcript requests, enrollment verification, conferring of degrees/certificates, scanning/imaging documents, phone calls received, face-to-face contacts, refunds granted, and other specialized services.)

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>How does this contribute to student success?</th>
<th>How many students received this service?</th>
<th>Measured with?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>08-09 09-10 10-11</td>
<td></td>
</tr>
</tbody>
</table>

Additional information:

Review Team Response

VISIONARY IMPROVEMENT PLAN (VIP)

Please identify 1-3 program improvement goals for the next three years. Goals should state 'what' you plan to achieve and the rationale 'why' for doing so. 'How' you achieve your goals will be entered under Steps to Success. Keep in mind that your VIP should be SMART:

- Specific
- Measurable
- Action-oriented
- Realistic
- Time-bound

All plans should improve or expand student learning.

Year Three Goal:
VIP Majors Curriculum and Transfer. To increase the number of students transferring to 4-year universities as biology majors with upper-division standing, and to increase timely access to the Chaffey biology courses required.

To which planning direction does this goal apply?
Excellence in teaching and learning

Year 1 Steps to Success (activities) and VIP Assessment:
Offer the revised series of majors-level courses (Biol 61, 62, 63) and implement a revised Associate's degree in biology that better prepares for transfer in the biological sciences. Facilitate articulation of our new coursework at transfer institutions by working with our articulation officer to review current articulation agreements and develop new ones as necessary. Be available to directly meet with faculty at local universities as needed. Meet with counseling faculty to develop effective course-taking pathways for biology majors and coordinate a plan to advise biology majors.

Count the number of students enrolled in the new series of biology majors courses and note excess demand (are there waitlists?). Have a written course-taking pathway to provide to biology major students. Have data reporting the progress made on articulation agreements.
Year 2 Steps to Success (activities) and VIP Assessment:
Continue offering the majors courses and adjust number of sections to meet demand. Meet with counselors for their feedback about any problems encountered with the new biology curriculum. Request course-taking behavior data about biology majors from IR to see if new curriculum is reducing the number of semesters biology majors spend at Chaffey. Continue monitoring articulation issues.
Poll students in majors courses to find out how many have an ED plan. Count the number of successful biology transfers compared to previous years. Count the number of AS degrees in Biology. Measure the average number of semesters to transfer to see if the time spent at Chaffey has decreased (is our curriculum really streamlined?).

Year Three Goal:
VIP Informed Growth. To develop a plan for informed program growth of course offerings in the three areas within our program (i.e., pre-allied health courses, general education transfer courses, and biology major courses) to better serve our students and the community.

To which planning direction does this goal apply?
Excellence in teaching and learning

Year 1 Steps to Success (activities) and VIP Assessment:
Meet with Institutional Research representative and request data about course offerings, course-taking behavior and the demand for courses/programs at Chino, Fontana and Rancho campuses. Request IR data on demographic and workforce trends within our district. Meet with pertinent departments to discuss how to effectively complement each other's scheduling of course offerings. Data regarding course offerings, course-taking behavior and community needs at Chino, Fontana, and Rancho campuses has been obtained from IR. Meetings with pertinent departments have taken place.

Year 2 Steps to Success (activities) and VIP Assessment:
Review data on student and community needs, analyze how to adjust our course offerings at each campus location, and update curriculum as needed. Meet with pertinent departments to develop a joint plan of complementary course offerings at each campus that will minimize course conflicts for courses commonly taken concurrently and thus maximize course completion at each campus location.
Course offerings and curriculum has been adjusted as appropriate based on analysis of data from year 1. An interdisciplinary multi-campus plan of course offerings has been developed.

Year Three Goal:
VIP Sustaining Quality and Allocating Resources. To develop and sustain quality physical resources (e.g., ponds, aviary, specimen collections, green house, nature preserve, lab equipment and supplies) and the necessary full time faculty and support staff (Instructional Assistants) that are integral to our course offerings and essential to successful attainment of SLOs as we continue to expand into a multi-campus department.

To which planning direction does this goal apply?
Excellence in teaching and learning

Year 1 Steps to Success (activities) and VIP Assessment:
Hire three full time faculty to teach classes requiring oversight of many sections, teach courses requiring specialized subject area training and to use their expertise in developing collection materials and protocols for their maintenance and preservation. Hire a permanent instructional assistant (IA4, "lab tech") for Chino and Fontana to support class offerings. Hire a permanent instructional assistant (IA4) to help maintain outdoor facilities and indoor resources at the Rancho campus (e.g., aviary, greenhouse, lath house, ponds, nature preserve, specimen collections, aquaria, lab equipment), most of which are unsustainably under faculty care at this time. Schedule at least one full time instructor to teach 1/2 load at Fontana, and at least one full time instructor to teach 1/2 load at Chino each semester. Identify gaps in resources, faculty and support staffing at each campus.

Instructional assistant is present at each campus location. Full time instructor assigned at least 1/2 load at each campus location. Gaps in resources have been identified.

Year 2 Steps to Success (activities) and VIP Assessment:
Allocate resources to fill in the gaps (purchase needed resources, adjust staffing). If budget allocation is insufficient, reduce course offerings to what is sustainable and request future budget augmentation.
Gaps in resources have been filled, and only adequately supported courses are offered. Budget augmentation request filed (if needed).

Review Team Response
The goals are clear, concise, attainable, measureable, and are clearly tied to data and SLO assessment results.

PROFESSIONAL DEVELOPMENT ACTIVITIES THAT SUPPORT STUDENT LEARNING OR IMPROVE YOUR PROGRAM
List Recent departmental professional development activities connected to student learning.

<table>
<thead>
<tr>
<th>Recent activities</th>
<th>Recent workshops/courses taken</th>
<th>Recent conferences/training</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Success Center Workshop</td>
<td>Classroom Management Workshop</td>
<td>Women Faculty in STEM at Hispanic Serving Institutions, fall 2010</td>
<td>Memberships in professional societies: AAAS- American Assoc for the Advancement of Science</td>
</tr>
<tr>
<td>PSR writing workshop</td>
<td>On Course workshop, Spring 2011</td>
<td>Southern California C-ID Conference, Oct 2010</td>
<td>So Cal American Society of Microbiology member</td>
</tr>
<tr>
<td>Student Discipline workshop</td>
<td>Title V HIS Student Services Retreat, Spring 2011</td>
<td>League for Innovation Conference, Spring 2011</td>
<td>Calif Native Plant Society member</td>
</tr>
<tr>
<td>Professional Relations Committee Workshop</td>
<td>SI Workshop, Fall 2010</td>
<td>STEM Faculty to Faculty Conference (at UCR)</td>
<td>National Science Teachers Assoc member</td>
</tr>
</tbody>
</table>
Grant Administrator for a NSF Grant "Bringing a Field Station into the Classroom."

Botanical Society of America member

Reading professional literature

Training for Moodle, ERes, Edustream

Faculty Summer Institute with some faculty as presenters and some as attendees, 2009

Professional Relations Committee Training

C-ID and MC work on Biology via email and teleconferencing

SLO workshop

Biology Department Summer 2010 Majors Curriculum Study as part of the Chaffey College STEM grant

Statewide C-ID Conference, Nov 2009

Care and oversight of zoological and botanical collections

---

How are student learning outcomes affected by these professional activities? What steps are recommended for improvement?

Student learning outcomes are affected in four main ways by our professional activities. 1. Activities that cultivate growth in technical and pedagogical skills enhance student learning and assessment. 2. Maintenance of collections and outdoor resources supports the rich and authentic educational environment necessary for student learning and successful transfer. 3. Design of curriculum, and the cultivation of professional relationships that support its successful and broad articulation, supports student learning and successful efficient transfer. 4. Activities that foster positive, empowering relationships with students and colleagues support student success by fostering resilience and creating high expectations. The steps we recommend for improvement are to take greater advantage of the opportunities and resources available through the Faculty Success Center.

Discuss departmental engagement on campus in connection to student learning.

<table>
<thead>
<tr>
<th>Governance committees</th>
<th>Other college-related committees</th>
<th>Other campus participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Senate Senator and Senator-at-Large</td>
<td>Health and Safety Committee</td>
<td>Advisor to Changing the Globe Club (student club)</td>
</tr>
<tr>
<td>Curriculum Committee</td>
<td>Multi-Campus Task Force</td>
<td>Advisor to Zoology Club (student club)</td>
</tr>
<tr>
<td>Tree, Plants and Grounds Committee, Members and Chairperson</td>
<td>Technology Committee</td>
<td>Advisor to Cell &amp; Molecular Biology Club (student club)</td>
</tr>
<tr>
<td>Chino Academic Planning Committee</td>
<td>Ethics Across the Curriculum Committee</td>
<td>Hosting tours of Online to College groups</td>
</tr>
<tr>
<td></td>
<td>Professional Relations Committee</td>
<td></td>
</tr>
</tbody>
</table>
How does your program benefit from your campus engagement?
There are three principle avenues by which the Biology Department actively engages in the enhancement of student learning across the campus. 1. The Biology Department maintains teaching resources (e.g., the Chaffey Nature Preserve, the fish tanks, the botanical and zoological collections, and very soon the aviary, pond and the new greenhouse) that motivate, enhance, and enable student learning throughout the campus. 2. For decades now, faculty of the Biology Department have played a leadership role on the Tree, Plants and Grounds Committee (Tree Committee, or TC). The TC continues to work diligently to preserve, protect and create outdoor spaces that support learning. 3. Faculty of the Biology Department have played a leadership role on the Ethics Across the Curriculum Committee, which has sponsored a plethora of rich and stimulating campus-wide panel discussions. Due to space limitations please see email attachment for a more complete response to this question.

<table>
<thead>
<tr>
<th>Teaching/Years of Service</th>
<th>Biology</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 years</td>
<td>3</td>
</tr>
<tr>
<td>6-10 years</td>
<td>1</td>
</tr>
<tr>
<td>11-15 years</td>
<td>3</td>
</tr>
<tr>
<td>16-20 years</td>
<td>0</td>
</tr>
<tr>
<td>21+ years</td>
<td>1</td>
</tr>
</tbody>
</table>

Given the data how has your program been impacted?
In recent years we have lost 3 full time faculty, 2 due to retirement and 1 resignation. This has increased the individual workload for the remaining faculty members for tasks beyond the direct teaching of classes (e.g., curriculum development, evaluations, committee service, oversight and planning associated with laboratories and physical resources) and has increased the number of adjunct to be mentored and aculturated to department procedures. This situation has magnified the extreme need for increased staffing both faculty and instructional technical support (lab tech) positions. But the Biology Department is not defined by who we have lost but instead by our current composition of new and old faculty. This combination gives us new perspectives, energy and enthusiasm balanced by experience. Please see the email attachment on staffing for more information on staffing needs.

Does your program anticipate retirements within the next 3 years?
No.

Review Team Response
Please include as an attachment the PSR Report in Word sent 4/22/11.

PROJECTED NEEDS

Is any part of the program funded by sources other than the instructional budget (such as grants, partnerships, or other means)? If yes, please identify the source, amount, and length of funding.
No, we are not funded by outside sources at this time. The deadline for the two year STEM grant funding that was used for some equipment purchases and for the new greenhouse was Dec 2010. No other grant funding is in place.

After reviewing and analyzing the data and assessment results in this report, please describe and provide rationale for any projected resource needs required to accomplish your Visionary Improvement Plan using the boxes below. Your requests should be based on student need.
FT Faculty:

Year 1:
Hire 3 full time faculty in biology. Please refer to email attachment on staffing (part of the professional development section of PSR) for justification of hiring full time positions, and see VIP 3 on maintenance of quality and allocation of resources.

Hiring Criteria:

Institutional Level Considerations
Supports Chino expansion
Supports Fontana expansion
Student need for courses or programs for transfer or vocational certificate

Department Concerns
Separation of a FT faculty member that creates hardship on the department. Additional consideration needs to be given to replacing the position due to factors such faculty specialization (e.g., not all remaining faculty members can teach all of the classes), seniority of remaining faculty members, etc.
Adjunct to FT ratio is extremely skewed (note: The 75/25 ratio state mandate is campus wide not per department)
Adjunct faculty are difficult to find (quality and qualified, high turnover, specific skill sets, external agency licensure requirements)
Programs that have extensive technical requirements which are evolving (e.g., software, complex and varied labs)
Supports diversity of program and course offerings

Year 2:

Hiring Criteria:

Year 3:

Hiring Criteria:

STAFF

Year 1
IA 4 for instructional support at Chino and Fontana (1/2 position at Fontana, and 1/2 position at Chino. In addition, a second IA4 for outdoor resources and collections at Rancho campus. Instructional Assistant support is required for: 1) preparation of lab materials for classes (e.g. solutions, stains, growth media), 2) care and maintenance of living or preserved specimens, including bacterial cultures. Maintenance of aquaria. 3) gathering of equipment and materials to be used for lab exercises (e.g. glassware, thermometers, hot plates, pipettes, balances, water baths, etc), and 4) clean-up after lab (dishwashing, appropriate disposal including sterilization) of used materials, putting away equipment, replenishing supplies). 5) Inventory, unpacking, assembly, simple installation and labeling of newly ordered equipment and supplies is also performed by the lab assistant. 6) Outdoor resource care and curation of collections (Rancho campus) includes: care and feeding of plants and caged animals in labs, aquaria, in the aviary, lath house and greenhouse. Curation of herbarium, zoology and anatomy specimens. Oversight and care of science complex plant community landscaping, ponds and their inhabitants. Necessary staff hiring supports VIP #2 and 3, informed growth and
maintenance of quality and allocation of resources. Also refer to email attachment linking Course level SLOs to physical resources. Additional instructional Assistant support at the Rancho Cucamonga campus is required for the care and maintenance of biological specimens both living and preserved in collections. The living specimens include those living in aquaria or cages, as well as those living outside in ponds, the lath house, the aviary, the new green house, and in landscaping around the science complex as well as organisms in the campus nature preserve.

**Year 2**

**Year 3**

**EQUIPMENT**

**Year 1**
With the recent STEM grant (which ended Dec 2010) the Biology department was able to purchase much needed lab equipment so at this time we don't anticipate any particular equipment needs. However, as we implement our VIP #3 for resource development at Fontana and Chino (as part of VIP#2 on informed growth) to be on a par with the Rancho campus we will be identifying equipment that is needed. At the Rancho campus as the aviary becomes a functional habitat it may require unanticipated equipment. We also anticipate the installation of the STEM-funded greenhouse and also anticipate there will be unanticipated equipment needs we will identify in year 1. Also see email attachment linking SLOs to physical resources.

**Year 2**
In year 2 we can purchase items identified in year 1 to make facilities functional and usable for instruction (see VIP #2 and 3). We anticipate dollar amount of $10,000.

**Year 3**
We anticipate some replacement and repair of aging equipment will be needed. We project a dollar amount of $10,000 or more. This is to support VIP #3 on maintenance of quality.

**TECHNOLOGY**

**Year 1**
The Bio Pac equipment used for Biol 22 Human Physiology at the Rancho campus is outdated compared to the newer version we have at the Chino campus. Cost for updated Bio Pak hardware and software package = $45,000; if needed for Fontana as well = $90,000 total for the 2 new systems. This supports VIP #3 on maintenance of quality and VIP #2 on informed program growth.

**Year 2**

**Year 3**

**SOFTWARE**

**Year 1**
The Bio Pac equipment cost listed in the section above includes the software that is part of the system.

**Year 2**
Review Team Response
The needs are clearly tied to the VIPs.

Review Team Response
The program contains excellent information and analysis to be useful for planning, supporting and improving student achievement and SLO's. The review contains clear, measurable goals and resource requests. The Review Team appreciates the program's responsiveness and collaboration in addressing the team's comments. Overall, PSR was detailed, clearly written with excellent supporting documentation. The VIP section is visionary and provides a roadmap for the department's future. The SLO matrix is great evidence of the department's commitment to the SLO process. Great job!