

Program Review/Follow-up Transmittal

General Information


The attached report is (check one): Program Review (published every 4th year)
 Program Review Follow-up (submitted annually)


The report is submitted for the Academic Year (select one): 2009-10

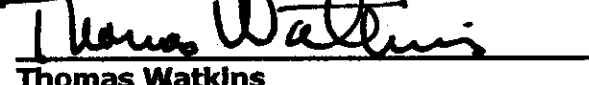
The report contains information on the follow unit(s) (enter names of all units/programs):
Biotechnology

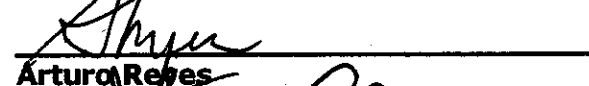
Report Abstract:


Biotechnology continues to train students for the biotechnology workforce. Faculty have maintained industry contacts and professional development through conferences to ensure a relevant and up-to-date curriculum. New and updated equipment has been acquired. There are now four articulation agreements in place with local and regional high schools.

Signature:  Date: 6/29/2010
James Dekloe
Faculty/Staff Representative

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Superintendent/President

Program Review and Analysis

Part I Outcomes

1. **What are the Student Learning Outcomes (SLOs) and Institutional-Level Outcomes (“Core Four”) of the program? List each along with descriptions of the appropriate indicators of program success (i.e., measures of outcomes). Include both quantitative and qualitative measures.**

Outcome(s)	Qualitative Measure(s)	Quantitative Measure(s)
The program will prepare students for the biotechnology industry.	The biotechnology program continues to encourage and receive peer review from industry representatives and from peer colleges that have biotechnology programs. These indicators suggest that the curriculum is current, and that the student training experience equals or exceeds that of other colleges.	
The program will graduate students who get interviews and are offered positions in the field.		The biotechnology program monitors the rate at which program graduates are offered interviews and are offered positions. The rate in the past for both categories has been 95+ %. The current economic downturn has caused this rate to dramatically decrease, with interview rates just over 60% and offers just over 30%. We are convinced that it is macroeconomic forces, rather than any particular characteristic of the program or of its curriculum, that is responsible for the decrease in these two measurements.

2. **The specific SCC Strategic Direction and Goal(s) supported by this program:**

Goal 1-Foster Excellence in Learning:

Obj. 1.1 — Create an environment that is conducive to student learning. The biotechnology program emphasizes learning through laboratory courses that emulate the work environment. These courses have students work in a team environment to achieve a specific goal. As part of this program, the students must develop their communication skills and must develop an ability to identify and carry out short-term objectives, clearly record their results in a standard scientific format, and to analyze the outcomes. (Industry feedback indicates that graduates of this program effectively carry out goals and achieve outcomes on the job.)

Obj. 1.2 — Create an environment that supports quality teaching.

Student evaluations indicate that students believe that the environment within the biotechnology program allows and encourages them to achieve their potential.

Obj. 1.3 — Optimize student performance on Institutional Core Competencies. Faculty who teach in this program periodically review the Institutional Core Competencies to make sure that these are incorporated into the program.

Goal 2- Maximize Student Access & Success:

Obj. 2.2 — Update and strengthen career/technical curricula.

The biotechnology program acquired new equipment, a new Bellco 3 liter bioreactor and a new Bio-Rad liquid chromatography system. The laboratory's existing bioreactor has also been serviced and updated. Multiple contacts with industry representatives and multiple conferences have allowed the faculty to continually review curriculum for currency.

Goal 3-Strengthen Community Connections:

Obj. 3.1 — Respond to community needs. The faculty from the biotechnology program continue to maintain a close relationship with community and regional industry groups (BayBIO and ISPE), economic development groups (Solano EDC) and workforce development groups (BayBIO Workforce Committee and Solano Workforce Investment Board).

Obj. 3.2 — Expand ties to the community. The biotech program has expanded its ties with local (and regional) high schools to include an articulation agreement with Rodriguez High School, Hogan High School, Benicia High School, and El Molino High School (Forestville).

Goal 4- Optimize Resources:

Obj. 4.3 — Maintain up-to-date technology to support the curriculum and business functions.

Again, multiple contacts with industry representatives and multiple conferences have the faculty continually review the technology examined within the curriculum for currency. The biotechnology program acquired new equipment, a new Bellco 3 liter bioreactor and a new Bio-Rad liquid chromatography system.

Part II Analysis

1. Identify and explain the trends in:

Enrollment— The enrollment has remained steady between the 2004-05 and current academic year. The number spikes during the 2006-07 academic year when the biotech department attempted to double the course offerings. The data show that more students were accommodated, but the department concluded that the demand at this time did not justify a doubling in offering.

Retention— The retention rate continues to be very high, typically in the 90%+ range.

Fill rate— The fill rate remains very high for the laboratory courses Biot 62 and Biot 63. The overall fill rate appears lower than the numbers might suggest because they are skewed by an outdated fill rate figure for Biot 51 and Biot 52.

Other Factors—

Outcome Data—

2. How do the above trends relate to the factors and outcomes identified during the last review?

Part III Conclusions and Recommendations

1. What are the major accomplishments of the program during the past four years?

- The biotechnology program continues to effectively train students for the biotechnology workforce based on enrollment, retention, and placement data.
- New equipment (new bioreactor and new chromatography system) has been integrated into the classroom experience.
- The faculty attends national scientific meetings.
- The faculty continue to maintain a strong relationship with Bio-Link, a national consortium of biotech faculty members. Through this association the program maintains an awareness of and contributes to industry and curriculum trends.
- Addition of the new course, Biotech 160, has opened up the curriculum to a new audience.
- The biotech program has effectively articulated with local high school articulation. The Solano College biotechnology program has forged a relationship between the college and local, regional, and national biotechnology companies that continues. The faculty are convinced, through national meetings, interaction with industry, and through discussions with biotech faculty from all over the country that the curriculum is up to date. The success of students shows that the curriculum is relevant.

2. Based on the analysis above, are there any changes needed in order to meet program goals or to improve program effectiveness? Explain.

The Solano College biotechnology program would not like to rest on its laurels but would like to take this program to the next level. To do this, the program will:

- Explore new offerings at the Vacaville campus
- Explore the possibility of generating a new lab
- Explore new curriculum and the integration of new techniques into the program (Two examples: a partnership with the Joint Genome Institute annotating bacterial genomes or the national program that has students collect and sequence bacterial viruses.)