**Sinclair Community College - Continuous Improvement Annual Update 2011-12**

**Program:** AAS in Biotechnology (BIOLOGY)

**Section I: Trend Data**

* 1. **Program Trend Data– Please include the three most recent years of data in each area so that trends may be examined.**

**Enrollment in our BTN class trends indicate a continued upwards trend. The department indicates three main components for such an increase; Community partnerships like the Tech Prep pathway, National grant work in the Bioscience DOL grant, and general trends seen nationally with enrollment trends at the community college level.**

**Degree completion is at a five year high, with 18 students receiving a degree in biotechnology 2011 compared to 5 in 2007.**

**Work within the department has focused on our “gatekeeper” course, BTN 130/131, which is our reagents prep course. This course is heavily involved in math related subject matter. In order to increase student success in this course the department has done the following; Developed a math retention program, increased work with tech prep program students, developed a biology/btn face book page, and developed a biotechnology student organized club. The data indicates that the retention plan has worked for those students indentified as high risk (D student) who are willing to participate in the retention plan. Of the students who were deemed at risk, 5 chose not to participate, 3 of which left the program and the other 2 continued to receive D level grades in the second year coursework.**

**Of the at risk students who did participate in such a program, all 6 increased their grades from D level to C level.**

**We will continue this work for a three year period for proper analysis.**

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**Sinclair is on the advisory board for several of the local tech-prep schools as well as holding trainings for all the schools in the area on campus (Wendell Meyers is the contact for those trainings). The students who participate in the tech-prep biotechnology programs receive credit from Sinclair for the BTN 110: Intro to Biotechnology and BTN 120: Lab Safety. They enter the program winter quarter in BTN 130. In both 2010 and 2011 we received 10 students through this pathway.**

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| **2010 Tech Prep Students in Biotech Program** | |
| Student A | Finished program |
| Student B | Failed BTN 130 |
| Student C | Identified as ‘high risk’, left program after first year |
| Student D | Identified as ‘high risk’, failed BTN 140 |
| Student E | Finished program, several safety issues in lab |
| Student F | Failed BTN 130 |
| Student G | Failed BTN 130, re-enrolled the next year |
| Student H | Identified as ‘high risk’, failed BTN 140 |
| Student I | Finished program |
| Student J | Finished program |

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| **2011 Tech Prep Students in Biotech Program** | |
| Student K | Still enrolled |
| Student L | Still enrolled |
| Student M | Still enrolled |
| Student N | Failed BTN 130 |
| Student O | Identified as ‘high risk’ , still enrolled |
| Student P | Identified as ‘high risk’, failed BTN 140 |
| Student Q | Re-enrolled from previous year, still enrolled |
| Student R | Identified as ‘high risk’, failed BTN 140 |
| Student S | Left program |
| Student T | Still enrolled |

**Although the success rate of the students is increasing from 2010, we have identified many of these students as ‘high risk’ or they have failed their first quarter into the program and have left. Our response to these data is to proactively work with the high schools in preparing these students properly for the classes they are receiving credit for as well as preparing them better to succeed once they move on to our program. We have also recently sat in for questions and answers with all the area Biotechnology Tech-Prep teachers while they are training on Sinclair’s campus to address concerns about their students as well as finding what specific needs they have from us. The following actions have been taken/are being taken currently in fall 2011.**

* **Teachers supplied with a detailed syllabus from BTN 110 and BTN 120**
* **Teachers will be supplied with a copy of a model lab notebook**
* **Teachers will be supplied with a copy of all homework assignments given in BTN 110 and BTN 120**
* **Teachers will be supplied with an outline of the most important safety rules and regulations their students should master before starting lab at Sinclair**
* **Teachers will be supplied with simple math problems to better prepare for BTN 130**
  1. **Interpretation and Analysis of Trend Data Included in the Section Above**

**The trends in the above data indicate an active department that is willing to supply the groundwork for student retention in the BTN program. As mentioned before, the external factors increase the number of students that we have and internal workings have kept them enrolled. As mentioned above, the department has worked to prepare the new students in the tech prep pathway to increase the likelihood of success and with the retention program; the department has proactively been involved with increasing student success.**

**Section II: Progress Since the Most Recent Review**

What was the fiscal year of the most recent Program Review for this program? (The most recent Program Review self-study can be found at <http://www.sinclair.edu/about/administrative/vpi/pdreview/> ).

1. Briefly summarize the goals that were listed in Section IV part E of the most recent Program Review Self-Study (this section of the Self-Study asks “What are the department’s/program’s goals and rationale for expanding and improving student learning, including new courses, programs, delivery formats and locations”)?

**2005-2006**

1. What Recommendations for Action were made by the review team to the most recent Program Review?

**Primary goal is to meet the growing enrollment demand for top 45 courses, as well as the TAG/OTM courses. We offer these courses at the various satellite campuses and online.**

1. Have the goals in your self-study changed since your last Program Review Self-Study as a result of the Review Team recommendations or for any other reason?  If so, please describe the changes.

**The department offers online classes; Bio 101,104, 107/108,111/117,121/127, and 122/128. Plans have been developed and have been continued to increase student success in the “gatekeeper” courses. These include Bio 111 and Bio 121**

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| **Year for BIO 111** | **Success Rate** | **Seat Count** | **Success Count** |
| 2006-2007 | 54.71% | 554 | 302 |
| 2007-2008 | 54.52% | 602 | 326 |
| 2008-2009 | 58.97% | 632 | 368 |
| 2009-2010 | 58.65% | 638 | 373 |
| 2010-2011 | 51.77% | 852 | 438 |
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| **Year for BIO 121** | **Success Rate** | **Seat Count** | **Success Count** |
| 2007-2008 | 52.40% | 271 | 142 |
| 2008-2009 | 57.91% | 810 | 465 |
| 2009-2010 | 48.02% | 1043 | 498 |
| 2010-2011 | 52.68% | 1029 | 540 |
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| **Year for BIO 141** | **Success Rate** | **Seat Count** | **Success Count** |
| 2006-2007 | 48.90% | 1049 | 512 |
| 2007-2008 | 50.76% | 990 | 499 |
| 2008-2009 | 57.91% | 918 | 527 |
| 2009-2010 | 62.13% | 1052 | 653 |
| 2010-2011 | 62.76% | 982 | 615 |
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| **Year for BIO 171** | **Success Rate** | **Seat Count** | **Success Count** |
| 2006-2007 | 52.22% | 91 | 47 |
| 2007-2008 | 60.92% | 87 | 53 |
| 2008-2009 | 55.56% | 100 | 55 |
| 2009-2010 | 60.66% | 123 | 74 |
| 2010-2011 | 73.63% | 92 | 67 |
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**Of note from chart, overall success might be lower in some of the gatekeeper courses, but more students are completing the courses successfully. Prime example is Bio121; over 800 more students were enrolled. The department would also like to reiterate that the two main courses focused on have seen the greatest success. Bio 171 is at an all time high and has jumped incredibly high since integration of lab and lecture. Meanwhile, with the help of the school administration and achieving the dream national support, Bio 141 has increased roughly 15 % all the while enrollment has skyrocketed.**

1. What progress has been made toward meeting any of the goals listed in the sections above (b, c, and d) in the past year?

**1. Continued to ensure consistent learning outcomes among all section of classes.**

**2. Collaboration with the ALH department to ensure consistent delivery of educational materials.**

**3. Work with collaborators to develop additional resources, such as Achieving the Dream.**

**4. Hiring of 2 full time tenure track faculty to meet the demands of our departments enrollment.**

**Section III: Assessment of Outcomes**

The Program Outcomes for this program are listed below. **At least one-third of your program outcomes must be assessed as part of this Annual Update, and across the next three years all of these program outcomes must be assessed at least once**.

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| **Biotechnology (BIOLOGY)** Program Outcomes | In which courses are these program outcomes addressed? | Which of these program outcomes were assessed during the last fiscal year? | Assessment Methods  Used |
| **1)** Demonstrate an understanding of safety issues in the workplace related to the use of biohazards and hazardous chemicals, as well as proper record keeping meeting industry standards for compliance with regulatory agencies | All BTN courses |  | * Graded lab reports and outside speaker presentations |
| **2)**. Demonstrate an understanding of the ethical issues involved in the use of biotechnology and working in the biotechnology industry | BTN 110 and 201 |  | * Graded homework, lecture and lab exams, and graded discussions from outside industrial partnerships |
| **3)** Develop essential employment skills for success in the workplace including resume preparation, job market analysis, professional image enhancement, appropriate professional interaction, proper work ethics, and goal setting. | BTN 110, 120, and 201 |  | * Mock interviews, graded resume and cover letters, workplace interview discussions. |
| **4)** Demonstrate proficiency in executing a wide variety of basic and advanced biotechnology research techniques. | BTN 130, 140,210,220, 230,235, and 240 |  | * Graded lecture and lab exams. Graded lab reports |
| **5)** Develop knowledge of various experimental systems, including bacterial cultures, mammalian cell cultures, and recombinant DNA technology. | BTN 130, 140,210,220, 230,235, and 240 |  | * Graded lecture and lab exams |

1. For the assessment methods listed in the table above, what were the results?

**Student retention in BTN 130 is historically an indicator of overall success in the program. As students perform in there, grade trends for advanced BTN courses follow suit. The department indicated that success in this course is essential for all of the other advanced BTN courses. We are at an all time high for BTN graduation.**

1. Were changes planned as a result of the data? If so, what were those changes?

**Proactive interventions “early on” based on the assessment methods are installed. This includes extra work in math related skills at the HS and college level, to which was discussed earlier in report. Constructive feedback on lab reports by potential employers was added. Working with career services has been beneficial for mock interviews for the students, indicating “highs and lows” for the students in terms of interview skills.**

1. How will you determine whether those changes had an impact?

**The department will continue to monitor trends in student retention, student enrollment, student grades, and if possible job placement.**

c) Starting with next year’s Annual Update, this section will ask about assessment of general education outcomes. For FY 2012-13, you will be asked how the department is assessing Oral Communication and Written Communication in your courses, and in addition you will be asked to share the results of those assessments. Please be prepared to address this in next year’s Annual Update.

**OK**

d) Does your department have courses where there are common assignments or exams across all sections of the course? If so, please list those courses, and indicate whether you are currently examining results across all sections of those courses.

**All on campus lab exams are common. We are continually monitoring and discussing results and trends**

**Section IV: Improvement Efforts for the Fiscal Year**

1. **FY 10-11:** What other improvement efforts did the department make in FY 10-11?  How successful were these efforts?  What further efforts need to be made? If your department didn’t make improvement efforts during the fiscal year, discuss the strengths and weaknesses of the department over the last year and how the department plans to address them in the coming year.

**Focus of the department has been on student success in BIO 141 and 171. A common weakness seen in incoming students are poor mathematical and chemistry knowledge. The department has been attending various career development seminars to help address this weakness. Below are results for the two focused student success classes**



1. **FY 11-12:** What improvement efforts does the department have planned for FY 11-12? How will you know whether you have been successful?

**The department will be preparing for the upcoming conversion from quarter to semesters in Fall of 2012. We will be continuing student success work in Bio 141/147 with the help of the Achieving the Dream coaching team. We will be focusing on Bio 111 student success. The analysis of this work will be multifaceted.**

Questions regarding completion of the Annual Update? Please contact the Director of Curriculum and Assessment at 512-2789 to schedule a time to review the template and ask any questions.