VALENCIA COLLEGE

East Campus

2016-2017

Divisional Strategic Planning Brief - Science

5/31/2017

Campus Outcome:

College Goal 2: Learning Assured

Campus objective 4: Continue to address, review and improve low-performing programs and courses

Department Outcome:

Division Goal:

The science division will examine the success rates for BSC 1010C and determine possible interventions for improving student success in this course.

BACKGROUND

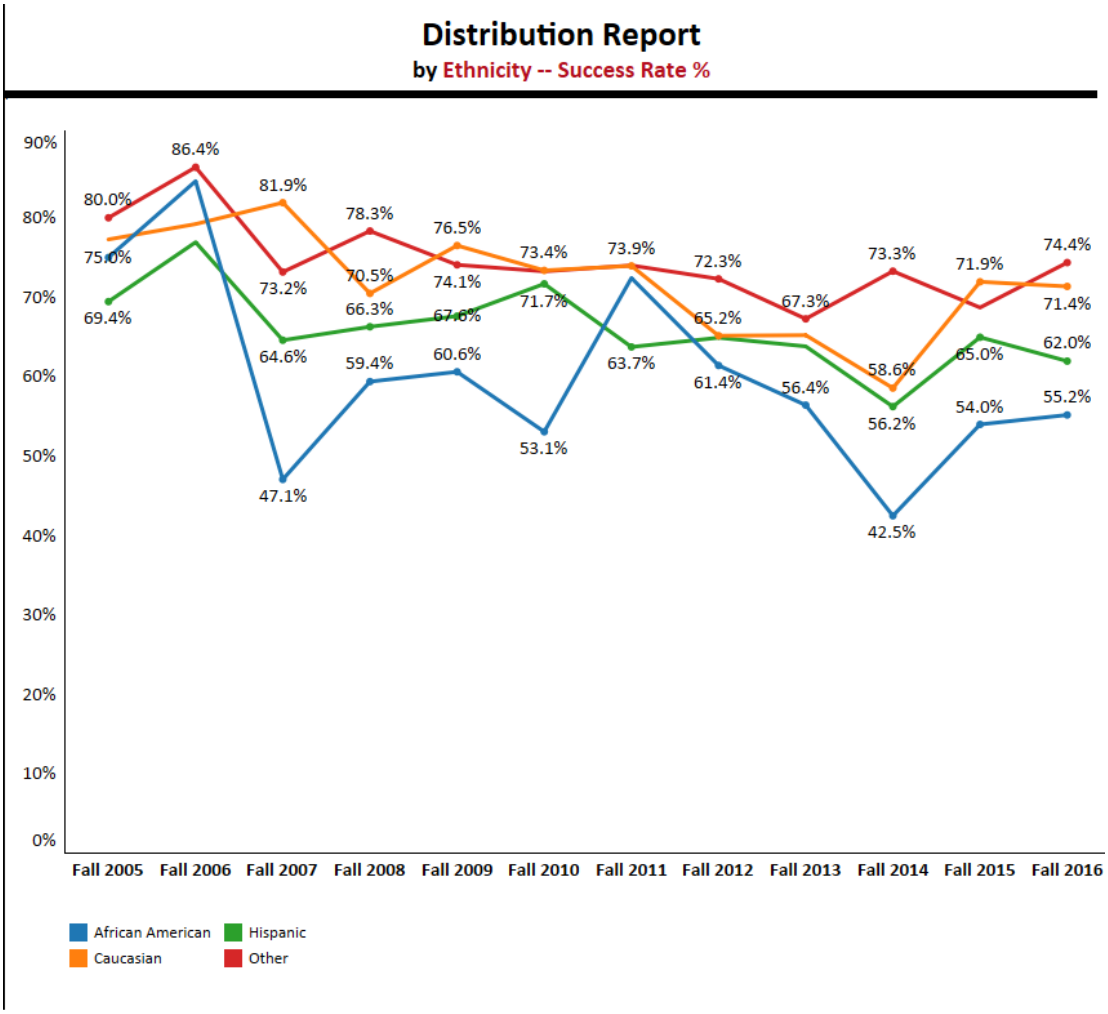
BSC 1010C, General Biology I, is a broad course that covers the fundamentals of biology. It is intended as a science majors' course, but in 2009-2010 also became a prerequisite for BSC 2093C, Anatomy and Physiology. This had a drastic impact on both enrollment and success rates shown in table 1.

Table 1

Academic Year	Headcount	Success Rate (%)
2005-2006	542	70.5
2006-2007	556	76.3
2007-2008	711	73.1
2008-2009	797	66.1
2009-2010	1075	70.8
2010-2011	1131	64.5
2011-2012	1579	67.6
2012-2013	1236	66.5
2013-2014	1470	63.6
2014-2015	1616	61.6
2015-2016	1546	66.4
2016-2017	1150	65.9

When investigating the data further, there is a noticeable achievement gap based on ethnicity. This is another area of concern for the college and division. The success rates for African American and Hispanic are well below the acceptable limit (70%) as seen in Figure 1.

Figure 1



INTERVENTION

In an effort to increase student success in BSC 1010C, there have been some fundamental changes implemented this year. The faculty have used an increased number of student leaders (SL) in these courses. A biology faculty member has been working very closely with the tutoring department to increase communication between the department and tutors. There has been some experimentation with “pop up” tutoring to engage students as they wait for classes to start, hoping to alert more students to the services provided in the Academic Success Center (ASC).

STRATEGIC RESULTS

As the data indicates, the interventions have not provided the substantial gains in success that we would expect for our efforts. One of the underlying aspects of this course is its inability to serve multiple student populations – nursing/allied health vs. science majors. The ideal success rate would be 70% average. The division would also expect to see gains in all groups.

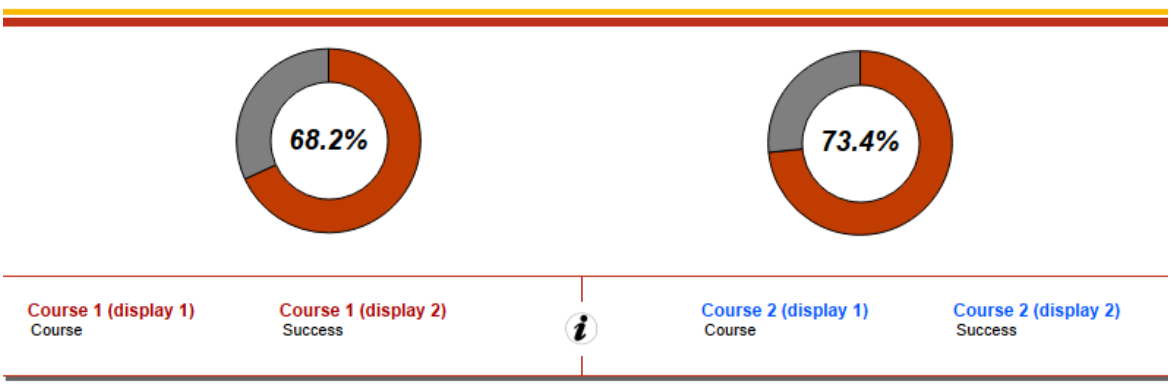
NEXT STEPS

There are some meaningful actions we will investigate to improve success rates in BSC 1010C.

1. There are some pending changes to curriculum mandated by the nursing program. Depending on the changes, there could be a change in demand and preparedness of students in Anatomy and Physiology. The proposals include development of a new sequence of A&P courses that would not require BSC 1010C as a prerequisite. This would have an impact on student success in A&P and BSC 1010C. Although we predict the new A&P courses to have sub-standard success rates, this change in curriculum will allow for improvement in BSC 1010C success rates. The curriculum will be more aligned with a majors' level science with appropriate prerequisites.
2. One of the prerequisites to be considered for BSC 1010C is college algebra. When looking at subsequent course success rates, this class seems to have a statistically significant effect on BSC 1010C success as seen in table 2.

Table 2

Success rates in *BSC1010C* in Fall 2016 for students who took *MAC1105*



Only keeps the last time the student has taken Course 1.
The table below only keeps students who have taken course 1 and course 2.

Course 1	Course 2	Course 2	N	%
MAC1105	BSC1010C	Successful	832	73.4%
		Unsuccessful	302	26.6%

BSC 1010C is the only majors' level science course without prerequisites. The prerequisites were removed to accommodate the nursing program's completion time. The elimination of prerequisites invites students of all academic background to take this course, regardless of their majors. If prerequisites are not added to the course, then a statement about its rigor is strongly suggested for the catalog.

3. There are trends indicating the achievement gap within different student populations is increasing from the 2005 term. It would be worth investigating further to see what practices have been eliminated that might have had a positive impact on minority groups.
4. The division is currently without a strong onboarding/mentoring program for new part-time faculty. There are slight differences in success rates for populations taught by FT vs. PT faculty. There is a lack of support for PT faculty during the evening hours, so that deficiency is being addressed with a more robust faculty scheduling system. Faculty release time is being used to develop a mentoring program, which should have a positive effect on student success – as well as faculty growth.

5. The ASC is working to implement a broader range of support in the classroom. There are indicators that students benefit from peer-to-peer tutoring, so the additional support should help with success rates.
6. Recent research shows that active teaching can be very beneficial to science student, so all faculty will be encouraged to pursue professional development on active learning techniques. There should be more effort to implement project based learning and undergraduate research in the science courses, and BSC 1010C should see an increase in success rates with more substantial learning techniques.

The divisional goal is to increase success rates to 70% average by spring 2019. There are some small changes that could lead to substantial gains, so the goal should be attainable. BSC 1010C is the science division's largest in enrollment, but least successful. There should be more concerted effort given to helping the students find success in this critical pathway course.