2016-17
Annual Program Review

Sciences
(Astronomy, Biology, Chemistry, Geology, Marine Science, Physics)

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Internal Analysis: Astronomy

Enrollment and FTES:
The number of enrollments in Astronomy courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the number of enrollments in 2012-2013.

The FTES in Astronomy credit courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in with in comparison with FTES in 2012-2013.

Efficiency (Number of Sections, Fill Rate, FTEF/30, WSCH/FTEF):
The number of sections in Astronomy courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the number of sections in 2012-2013.

The fill rate in Astronomy courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a moderate increase (5.0% to 10.0%)** in comparison with the fill rate in 2012-2013.

The FTEF/30 ratio in Astronomy courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the FTEF/30 ratio in 2012-2013.

The WSCH/FTEF ratio in Astronomy courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the WSCH/FTEF ratio in 2012-2013.

Couse Success Rate:
The course success rate in Astronomy courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the course success rate in 2012-2013. The course success rate from 2014-2015 was **minimal to no difference** than the college average (65.4%) and was **moderately higher (5.0% to 10.0%)** than the institutional-set standard for course success (55.4%).

Term Retention Rate:
The term retention rate in Astronomy courses in 2014-2015 showed **a moderate increase (5.0% to 10.0%)** from 2013-2014 and **a slight increase (1.0% to 4.9%)** in comparison with the term retention rate in 2012-2013. The term retention from 2014-2015 was **minimal to no difference** than the college average (82.3%) and was **moderately higher (5.0% to 10.0%)** than the institutional-set standard of term retention (70.3%).

Awards (Degrees and Certificates):
n/a A significant portion of undergraduates who wish to pursue a career in Astronomy will seek a BS in Physics. There is a minimal need for establishing an AA or ADT program in Astronomy. Since we do not offer either, the number of degrees in Astronomy in 2014-2015 showed **minimal to no difference** from 2013-2014 and showed **minimal to no difference** in comparison with the number of degrees awarded in 2012-2013.

The number of certificates in Astronomy in 2014-2015 showed minimal to no difference from 2013-2014 and showed minimal to no difference in comparison with the number of certificates awarded in 2012-2013.

Modality:
The significant changes in the Modality from 2013 to 2015 is due to the increase in the MAX capacity for the telecourse version of ASTR100, which was approved in 2014.

Demographics:
The significant changes in the demographics from 2013 to 2015 is due to the increased number of students in the telecourse version of ASTR100, which has a significant fraction of incarcerated students.

Implications of Change

There have been two major changes in Astronomy since 2014:

1. The MAX for the telecourse version of ASTR100 was raised from 200 to 270 in Fall 2015. The number of students taking the telecourse ASTR100 more than doubled from 2013 to 2015, rising from 90 to slightly over 180. As of Fall 2016, there are over 200 students in this course. A significant fraction of these students are in the incarcerated program. Mahbub Khan is responsible for teaching the telecourse version of ASTR100, and will most likely continue to do so for the foreseeable future.
2. The acquisition of telescopes in 2015 has resulted in a major overhaul of the lab course ASTR100L. We anticipate an increase in the number of students taking ASTR100L at NBC in future semesters. On a related note, the MAX for ASTR100L was set at 40 when this course was based solely on computer simulations. This inflated number has resulted in a drop in the fill rate for Astronomy. The MAX for ASTR100L will be changed to 28 beginning Fall 2017 to better match the available equipment.

At present, there is the only FT faculty for Astronomy and Physics, David Devine. An additional FT faculty for Physics will be needed within 1-3 years in order for Devine to be able to focus his efforts on growing the Astronomy program at NBC.

Table 1.1 Program Productivity Data for Astronomy

Academic Year	2012-13	2013-14	2014-15
CENSUS Enrollment	272	571	895
FTES	26.1	52.5	81.8
FTEF30	0.6	0.9	1.1
WSCH/FTEF	658	939	1,239
Sections	6.0	7.0	8.0
Fill Rate	75.3%	69.6%	82.1%
DEGREES AND CERTIFICATES			
Associate Degrees	0	0	0
Certificates	0	0	0
STUDENT DEMOGRAPHICS			
GRADED Enrollment	260	567	890
GENDER			
Female	49.6%	30.7%	23.7%
Male	48.8%	69.0%	75.4%
Unknown	1.5%	0.4%	0.9%
AGE at TERM			
Less than 19	20.8%	7.4%	7.3%
20 to 24	38.1%	26.1%	19.9%
25 to 29	14.6%	18.7%	15.6%
30 to 34	10.0%	14.1%	16.6%
35 to 39	5.8%	9.0%	12.2%
40 to 49	5.4%	15.2%	18.4%
50 and Older	5.4%	9.5%	9.9%
RACE/ETHNICITY			
African American	4.2%	13.2%	14.4%
American Indian	5.0%	5.3%	4.8%
Asian	22.3%	9.3%	11.8%
Hispanic/Latino	16.9%	21.7%	24.2%
Pacific Islander	0.8%	0.7%	1.1%
White	42.3%	47.3%	42.4%
Unknown	8.5%	2.5%	1.3%
INSTRUCTIONAL MODALITY			
Cable	0.0%	0.0%	0.0%
Correspondence	0.0%	0.0%	0.0%
Hybrid	0.0%	0.0%	6.1%
Online	60.8%	41.8%	27.5%
Self-Paced	0.0%	0.0%	0.0%
Telecourse	0.0%	54.3%	66.4%
Traditional	39.2%	3.9%	0.0%

Table 1.2 Program Review Data for Astronomy by Modality

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	260	567	890
-Overall Success Rate	41.5%	51.1%	60.9%
-Overall Retention Rate	74.2%	71.3%	75.5%
STUDENT DEMOGRAPHICS			
GENDER			
Female	129	174	211
Male	127	391	671
Unknown	4	2	8
Success Rate			
- Female	36.4%	39.1%	54.0%
- Male	46.5%	56.5%	63.5%
- Unknown	50.0%	50.0%	25.0%
Retention Rate			
- Female	71.3%	61.5%	70.1%
- Male	77.2%	75.4%	77.6%
- Unknown	75.0%	100.0%	37.5%

Table 1.3 Program Review Data for Astronomy by Gender

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	**260**	**567**	**890**
-Overall Success Rate	41.5%	51.1%	60.9%
-Overall Retention Rate	74.2%	71.3%	75.5%
AGE at TERM			
Less than 19	54	42	65
20 to 24	99	148	177
25 to 29	38	106	139
30 to 34	26	80	148
35 to 39	15	51	109
40 to 49	14	86	164
50 and Older	14	54	88
Success Rate			
Less than 19	48.1%	31.0%	50.8%
20 to 24	34.3%	39.2%	48.0%
25 to 29	60.5%	51.9%	54.7%
30 to 34	34.6%	56.3%	72.3%
35 to 39	46.7%	64.7%	71.6%
40 to 49	28.6%	61.6%	67.1%
50 and Older	35.7%	61.1%	60.2%
Retention Rate			
Less than 19	77.8%	59.5%	73.8%
20 to 24	72.7%	64.9%	71.8%
25 to 29	81.6%	70.8%	69.8%
30 to 34	84.6%	76.3%	80.4%
35 to 39	73.3%	84.3%	81.7%
40 to 49	50.0%	72.1%	79.3%
50 and Older	57.1%	77.8%	70.5%

Table 1.4 Program Review Data for Astronomy by Age Group

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	**260**	**567**	**890**
-Overall Success Rate	41.5%	51.1%	60.9%
-Overall Retention Rate	74.2%	71.3%	75.5%
RACE/ETHNICITY			
African American	11	75	128
American Indian	13	30	43
Asian	58	53	105
Hispanic/Latino	44	123	215
Pacific Islander	2	4	10
White	110	268	377
Unknown	22	14	12
Success Rate			
African American	0.0%	33.3%	53.9%
American Indian	15.4%	40.0%	51.2%
Asian	39.7%	39.6%	58.1%
Hispanic/Latino	50.0%	52.0%	60.9%
Pacific Islander	0.0%	75.0%	30.0%
White	45.5%	59.7%	65.8%
Unknown	50.0%	35.7%	66.7%
Retention Rate			
African American	45.5%	69.3%	66.4%
American Indian	69.2%	63.3%	67.4%
Asian	67.2%	60.4%	73.3%
Hispanic/Latino	72.7%	73.2%	79.1%
Pacific Islander	100.0%	100.0%	100.0%
White	78.2%	74.3%	77.2%
Unknown	90.9%	57.1%	83.3%

Table 1.5 Program Review Data for Astronomy by Ethnicity

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	**260**	**567**	**890**
-Overall Success Rate	41.5%	51.1%	60.9%
-Overall Retention Rate	74.2%	71.3%	75.5%
INSTRUCTIONAL MODALITY			
Cable	0	0	0
Correspondence	0	0	0
Hybrid	0	0	54
Online	158	237	245
Self-Paced	0	0	0
Telecourse	0	308	591
Traditional	102	22	0
Success Rate			
Cable			
Correspondence			
Hybrid			44.4%
Online	36.1%	40.1%	51.0%
Self-Paced			
Telecourse		60.1%	66.5%
Traditional	50.0%	45.5%	
Retention Rate			
Cable			
Correspondence			
Hybrid			64.8%
Online	69.6%	61.2%	64.9%
Self-Paced			
Telecourse		78.9%	80.9%
Traditional	81.4%	72.7%	

Internal Analysis: Biology

Enrollment and FTES:

The number of enrollments in Biology courses in 2014-2015 showed **a moderate decrease (-5.0% to -10.0%)** from 2013-2014 and **a slight decrease (-1.0 to -4.9)** in comparison with the number of enrollments in 2012-2013.

The FTES in Biology credit courses in 2014-2015 showed **a slight decrease (-1.0 to -4.9)** from 2013-2014 and **minimal to no difference** in with in comparison with FTES in 2012-2013.

Efficiency (Number of Sections, Fill Rate, FTEF/30, WSCH/FTEF):

The number of sections in Biology courses in 2014-2015 showed **a moderate decrease (-5.0% to -10.0%)** from 2013-2014 and **a moderate decrease (-5.0% to -10.0%)** in comparison with the number of sections in 2012-2013.

The fill rate in Biology courses in 2014-2015 showed **minimal to no difference** from 2013-2014 and **a slight decrease (-1.0 to -4.9)** in comparison with the fill rate in 2012-2013.

The FTEF/30 ratio in Biology courses in 2014-2015 showed **minimal to no difference** from 2013-2014 and **a slight increase (1.0% to 4.9%)** in comparison with the FTEF/30 ratio in 2012-2013.

The WSCH/FTEF ratio in Biology courses in 2014-2015 showed **a slight decrease (-1.0 to -4.9)** from 2013-2014 and **a moderate decrease (-5.0% to -10.0%)** in comparison with the WSCH/FTEF ratio in 2012-2013.

Couse Success Rate:

The course success rate in Biology courses in 2014-2015 showed **minimal to no difference** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the course success rate in 2012-2013. The course success rate from 2014-2015 was **minimal to no difference** than the college average (65.4%) and was **substantially higher (> 10.0%)** than the institutional-set standard for course success (55.4%).

Term Retention Rate:

The term retention rate in Biology courses in 2014-2015 showed **minimal to no difference** from 2013-2014 and **a slight decrease (-1.0 to -4.9)** in comparison with the term retention rate in 2012-2013. The term retention from 2014-2015 was **minimal to no difference** than the college average (82.3%) and was **substantially higher (> 10.0%)** than the institutional-set standard of term retention (70.3%).

Awards (Degrees and Certificates):

The number of degrees in Biology in 2014-2015 showed **minimal to no difference** from 2013-2014 and showed **minimal to no difference** in comparison with the number of degrees awarded in 2012-2013.

The number of certificates in Biology in 2014-2015 showed **minimal to no difference** from 2013-2014 and showed **minimal to no difference** in comparison with the number of certificates awarded in 2012-2013.

HEALTH SCIENCE CERTIFICATE:

Our Health Science Certificate needs to be marketed by both the Science Department and the Counseling Department. We are adding Chem 180/180L (or Chem 180C once it passes Curriculum/State) as a choice

besides Chem 110. Chem 110 is required for the pre-nursing students, but Chem 180/180L is required for many of the other pre-allied health students. See data below.

Coastline Community College

Degree and Certificate Attainment

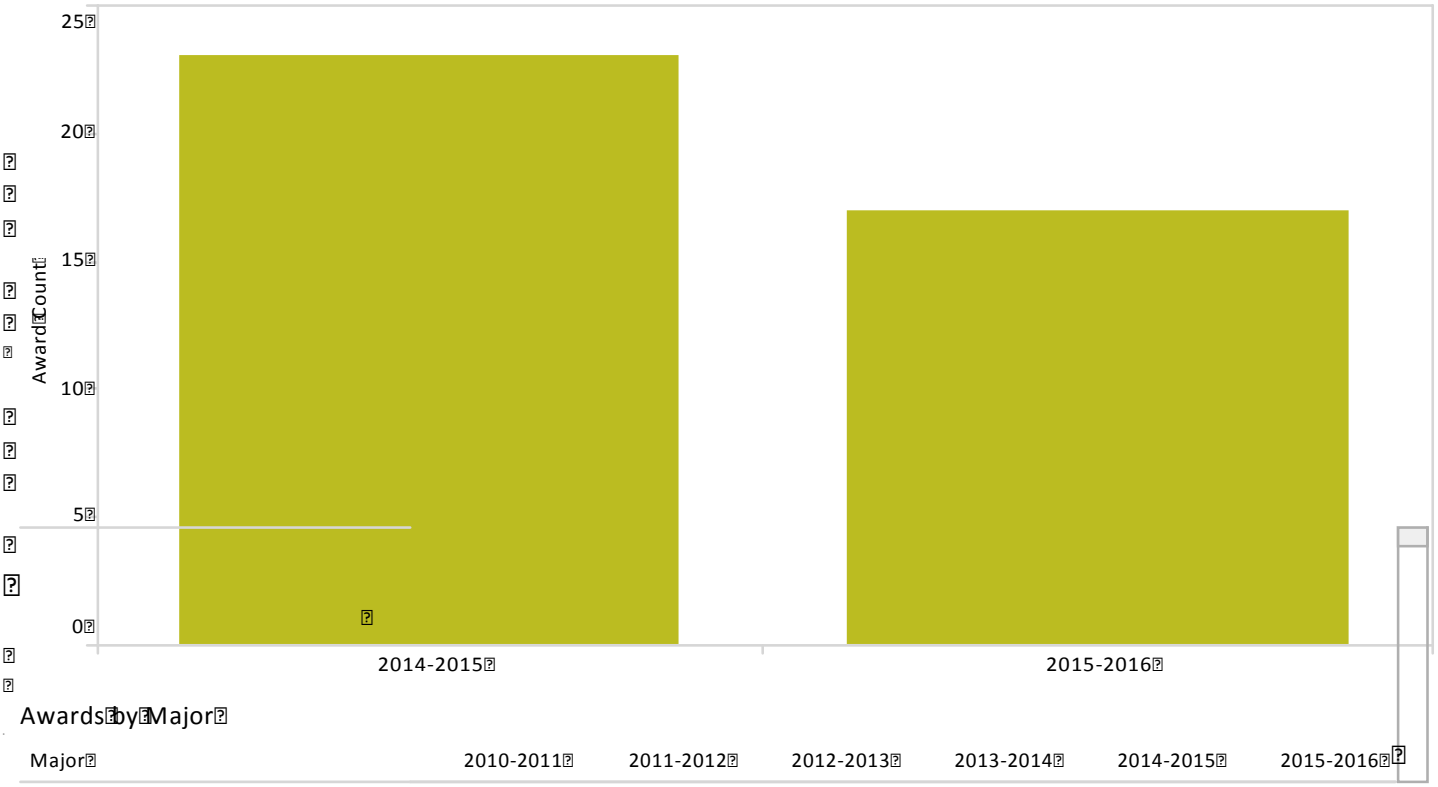
2010-2011 to 2015-2016

Branch
All

Major
All

Award Type
All

Degrees and Certificates by Year HEALTH SCIENCE CERTIFICATE



Awards by Major

Major	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016

Source: CCCD Banner Student Information System
Data Pulled On: 7/5/2016

Modality:

The Biology Department has three types of students.

1. Non-majors Biology students who are taking Bio 100 (or MRSC 100) to fill their GE requirements. These students heavily favor the online method of delivery.

2. Health Science students who are taking classes to fill the prerequisites of a professional degree whether MD, DDS, PT, OT, PA, nursing, or pharmacy. These students require on site laboratory experience and therefore require on site courses.

3. Biology major student. These students require Bio 180 and Bio 185 in order to transfer to a UC or CSU. Our Biology ADT has yet to be approved as it awaits information on our Chem 180 and 185 programs. We are hopeful to have the ADT approved in 2017. These students also require on site laboratories.

Demographics:

As mentioned above, we expect growth in our online Bio 100 and in our Biology ADT. However, growing on site classes requires Instructional Laboratory Associates for support. Also see facilities for vision of closing Le-Jao laboratory and developing second STEM center at Garden Grove.

Implications of Change

In order to grow the ADT in Biology (Bio 180-Cell and Molecular Biology and Bio 185 Diversity of Organisms) and to continue to support our Health Science courses of Bio 220 (Human Anatomy), Bio 225 (Human Physiology), and Bio 210 (Microbiology), all which require on site laboratories, we will require additional full time Instructional Lab Associates in order to keep up with the pace of the course, order and maintain supplies, and monitor safety including following all MSDS (material data safety sheets).

We will also need to continue to hire part time instructors as there are two Biological Science courses (BIO 282 Molecular Biology and Bio 283 Biochemistry)- that we are unable to offer at this time.

Table 1.6 Program Productivity Data for Biology

Academic Year	2012-13	2013-14	2014-15
CENSUS Enrollment	3,431	3,654	3,340
FTES	449.0	458.6	433.9
FTEF30	10.7	11.1	11.0
WSCH/FTEF	686	680	648
Sections	79.0	78.0	74.0
Fill Rate	87.3%	84.9%	84.2%
DEGREES AND CERTIFICATES			
Associate Degrees	0	0	0
Certificates	0	0	0
STUDENT DEMOGRAPHICS			
GRADED Enrollment	3,378	3,561	3,339
GENDER			
Female	57.2%	57.3%	56.9%
Male	41.6%	41.5%	41.6%
Unknown	1.2%	1.2%	1.5%
AGE at TERM			
Less than 19	12.8%	10.4%	10.7%
20 to 24	38.0%	36.3%	38.9%
25 to 29	18.1%	20.2%	19.9%
30 to 34	11.5%	11.1%	9.9%
35 to 39	6.6%	6.6%	6.3%
40 to 49	8.1%	9.5%	8.2%
50 and Older	4.9%	5.8%	6.1%
RACE/ETHNICITY			
African American	8.1%	8.9%	8.0%
American Indian	1.6%	2.0%	2.0%
Asian	39.8%	37.2%	39.8%
Hispanic/Latino	11.5%	14.3%	13.7%
Pacific Islander	0.7%	0.7%	0.7%
White	31.7%	32.9%	34.2%
Unknown	6.6%	4.0%	1.7%
INSTRUCTIONAL MODALITY			
Cable	0.0%	0.0%	0.0%
Correspondence	0.0%	0.0%	0.0%
Hybrid	1.2%	0.4%	0.5%
Online	34.7%	41.2%	43.5%
Self-Paced	0.1%	0.0%	0.0%
Telecourse	11.2%	13.4%	13.1%
Traditional	52.8%	45.0%	42.8%

Table 1.7 Program Review Data for Biology by Modality

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	3,378	3,561	3,339
-Overall Success Rate	74.4%	74.2%	74.6%
-Overall Retention Rate	88.0%	86.5%	86.5%
INSTRUCTIONAL MODALITY			
Cable	0	0	0
Correspondence	0	0	0
Hybrid	40	15	18
Online	1,172	1,467	1,454
Self-Paced	4	0	0
Telecourse	378	478	437
Traditional	1,784	1,601	1,430
Success Rate			
Cable			
Correspondence			
Hybrid	85.0%	86.7%	72.2%
Online	77.2%	74.3%	75.3%
Self-Paced	75.0%	0.0%	0.0%
Telecourse	43.7%	53.3%	58.8%
Traditional	78.8%	80.3%	78.7%
Retention Rate			
Cable			
Correspondence			
Hybrid	90.0%	93.3%	77.8%
Online	92.5%	86.9%	86.7%
Self-Paced	75.0%	0.0%	0.0%
Telecourse	78.0%	84.7%	87.2%
Traditional	87.2%	86.5%	86.2%

Table 1.8 Program Review Data for Biology by Gender

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	3,378	3,561	3,339
-Overall Success Rate	74.4%	74.2%	74.6%
-Overall Retention Rate	88.0%	86.5%	86.5%
STUDENT DEMOGRAPHICS			
GENDER			
Female	1,933	2,040	1,901
Male	1,404	1,478	1,388
Unknown	41	43	50
Success Rate			
- Female	77.5%	77.5%	76.6%
- Male	69.6%	70.1%	71.5%
- Unknown	87.8%	62.8%	84.0%
Retention Rate			
- Female	89.8%	86.9%	86.7%
- Male	85.3%	86.1%	86.1%
- Unknown	97.6%	79.1%	92.0%

Table 1.9 Program Review Data for Biology by Age Group

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	**3,378**	**3,561**	**3,339**
-Overall Success Rate	74.4%	74.2%	74.6%
-Overall Retention Rate	88.0%	86.5%	86.5%
AGE at TERM			
Less than 19	434	369	358
20 to 24	1,283	1,292	1,298
25 to 29	611	721	664
30 to 34	387	396	331
35 to 39	224	235	210
40 to 49	272	340	273
50 and Older	167	208	205
Success Rate			
Less than 19	76.7%	74.3%	79.9%
20 to 24	76.1%	76.4%	75.0%
25 to 29	73.8%	72.7%	72.6%
30 to 34	69.8%	74.2%	74.0%
35 to 39	71.0%	69.4%	70.5%
40 to 49	68.8%	73.2%	73.3%
50 and Older	80.8%	73.6%	76.1%
Retention Rate			
Less than 19	91.9%	86.7%	88.3%
20 to 24	90.3%	87.8%	87.1%
25 to 29	87.7%	85.3%	83.7%
30 to 34	79.8%	85.1%	83.7%
35 to 39	85.7%	84.7%	84.8%
40 to 49	84.2%	87.1%	88.3%
50 and Older	89.8%	85.1%	93.2%

Table 1.10 Program Review Data for Biology by Ethnicity

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	**3,378**	**3,561**	**3,339**
-Overall Success Rate	74.4%	74.2%	74.6%
-Overall Retention Rate	88.0%	86.5%	86.5%
RACE/ETHNICITY			
African American	272	316	267
American Indian	53	72	66
Asian	1,345	1,326	1,330
Hispanic/Latino	390	509	457
Pacific Islander	24	26	22
White	1,072	1,170	1,141
Unknown	222	142	56
Success Rate			
African American	53.3%	47.8%	46.8%
American Indian	54.7%	69.4%	65.2%
Asian	82.5%	82.2%	82.9%
Hispanic/Latino	62.1%	65.2%	65.6%
Pacific Islander	66.7%	73.1%	68.2%
White	74.2%	77.0%	76.2%
Unknown	79.3%	71.1%	62.5%
Retention Rate			
African American	82.4%	79.7%	76.4%
American Indian	77.4%	86.1%	87.9%
Asian	90.6%	89.2%	89.8%
Hispanic/Latino	85.1%	83.3%	82.3%
Pacific Islander	87.5%	88.5%	86.4%
White	87.5%	86.8%	86.7%
Unknown	89.2%	84.5%	87.5%

Internal Analysis: Chemistry

Enrollment and FTES:
The number of enrollments in Chemistry courses in 2014-2015 showed **a substantial decrease (> -10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the number of enrollments in 2012-2013.

The FTES in Chemistry credit courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in with in comparison with FTES in 2012-2013.

Efficiency (Number of Sections, Fill Rate, FTEF/30, WSCH/FTEF):
The number of sections in Chemistry courses in 2014-2015 showed **a moderate decrease (-5.0% to -10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the number of sections in 2012-2013.

The fill rate in Chemistry courses in 2014-2015 showed **minimal to no difference** from 2013-2014 and **a slight decrease (-1.0 to -4.9)** in comparison with the fill rate in 2012-2013.

The FTEF/30 ratio in Chemistry courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the FTEF/30 ratio in 2012-2013.

The WSCH/FTEF ratio in Chemistry courses in 2014-2015 showed **minimal to no difference** from 2013-2014 and **a moderate decrease (-5.0% to -10.0%)** in comparison with the WSCH/FTEF ratio in 2012-2013.

Couse Success Rate:
The course success rate in Chemistry courses in 2014-2015 showed **minimal to no difference** from 2013-2014 and **a moderate increase (5.0% to 10.0%)** in comparison with the course success rate in 2012-2013. The course success rate from 2014-2015 was **minimal to no difference** than the college average (65.4%) and was **substantially higher (> 10.0%)** than the institutional-set standard for course success (55.4%).

Term Retention Rate:
The term retention rate in Chemistry courses in 2014-2015 showed **a slight increase (1.0% to 4.9%)** from 2013-2014 and **a slight increase (1.0% to 4.9%)** in comparison with the term retention rate in 2012-2013. The term retention from 2014-2015 was **minimal to no difference** than the college average (82.3%) and was **substantially higher (> 10.0%)** than the institutional-set standard of term retention (70.3%).

Awards (Degrees and Certificates):
The number of degrees in Chemistry in 2014-2015 showed **minimal to no difference** from 2013-2014 and showed **minimal to no difference** in comparison with the number of degrees awarded in 2012-2013.

The number of certificates in Chemistry in 2014-2015 showed **minimal to no difference** from 2013-2014 and showed **minimal to no difference** in comparison with the number of certificates awarded in 2012-2013.

Modality:
The graded enrollment for Chemistry increased by more than 30% (937 to 1277) from 2013 – 2015. This was due primarily to a large increase in the number of Traditional students, which rose from 565 to 878 during this period. There was a large drop in the number of online students between 2014 and 2015, however this was offset by a nearly equal increase in the number of hybrid students.

Demographics:
There were minimal changes in the demographics during this period.

Implications of Change

As part of its planned growth, and to better serve related STEM programs, Chemistry is in the late stages of developing an ADT program. The continued growth of Chemistry, especially at the Newport Beach Center, depends critically on sufficient staffing of Instructional Laboratory Associates. As discussed in the Biology section oif this review, In order to serve the needs of the sciences, we need at least 2 FT Instructional Laboratory Associates, one for the Garden Grove Center, and one for the Newport Beach Center. This is critical to the continued growth of Chemisty and all of the STEM programs.

Table 1.11 Program Productivity Data for Chemistry

Academic Year	2012-13	2013-14	2014-15
CENSUS Enrollment	1,165	1,574	1,343
FTES	137.2	192.3	217.6
FTEF30	4.3	6.6	7.5
WSCH/FTEF	528	477	478
Sections	36.0	55.5	52.0
Fill Rate	88.4%	87.8%	87.4%
DEGREES AND CERTIFICATES			
Associate Degrees	0	0	0
Certificates	0	0	0
STUDENT DEMOGRAPHICS			
GRADED Enrollment	937	1,349	1,277
GENDER			
Female	60.1%	57.4%	59.1%
Male	36.6%	41.7%	38.8%
Unknown	3.3%	1.0%	2.1%
AGE at TERM			
Less than 19	17.3%	15.6%	14.0%
20 to 24	35.1%	39.5%	41.7%
25 to 29	24.7%	25.7%	21.6%
30 to 34	10.7%	10.2%	11.9%
35 to 39	5.5%	4.0%	5.2%
40 to 49	5.0%	3.4%	3.6%
50 and Older	1.7%	1.6%	2.0%
RACE/ETHNICITY			
African American	4.9%	3.6%	3.4%
American Indian	1.5%	0.6%	1.5%
Asian	52.8%	50.3%	49.6%
Hispanic/Latino	7.6%	11.0%	9.8%
Pacific Islander	0.7%	0.3%	0.2%
White	25.9%	30.5%	33.4%
Unknown	6.5%	3.8%	2.0%
INSTRUCTIONAL MODALITY			
Cable	0.0%	0.0%	0.0%
Correspondence	0.0%	0.0%	0.0%
Hybrid	0.0%	0.0%	9.0%
Online	39.7%	29.8%	22.2%
Self-Paced	0.0%	0.0%	0.0%
Telecourse	0.0%	0.0%	0.0%
Traditional	60.3%	70.2%	68.8%

Table 1.12 Program Review Data for Chemistry by Modality

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	937	1,349	1,277
-Overall Success Rate	81.5%	82.8%	82.3%
-Overall Retention Rate	88.4%	88.4%	89.3%
INSTRUCTIONAL MODALITY			
Cable	0	0	0
Correspondence	0	0	0
Hybrid	0	0	115
Online	372	402	284
Self-Paced	0	0	0
Telecourse	0	0	0
Traditional	565	947	878
Success Rate			
Cable			
Correspondence			
Hybrid			78.3%
Online	77.7%	79.1%	81.0%
Self-Paced			
Telecourse			
Traditional	84.1%	84.4%	83.3%
Retention Rate			
Cable			
Correspondence			
Hybrid			93.0%
Online	88.4%	88.8%	90.5%
Self-Paced			
Telecourse			
Traditional	88.3%	88.2%	88.4%

Table 1.13 Program Review Data for Chemistry by Gender

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	937	1,349	1,277
-Overall Success Rate	81.5%	82.8%	82.3%
-Overall Retention Rate	88.4%	88.4%	89.3%
STUDENT DEMOGRAPHICS			
GENDER			
Female	563	774	755
Male	343	562	495
Unknown	31	13	27
Success Rate			
- Female	79.8%	81.9%	80.5%
- Male	84.3%	84.0%	84.6%
- Unknown	83.9%	84.6%	88.9%
Retention Rate			
- Female	87.2%	88.2%	87.5%
- Male	90.4%	88.3%	91.5%
- Unknown	87.1%	100.0%	96.3%

Table 1.14 Program Review Data for Chemistry by Age Group

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	**937**	**1,349**	**1,277**
-Overall Success Rate	81.5%	82.8%	82.3%
-Overall Retention Rate	88.4%	88.4%	89.3%
AGE at TERM			
Less than 19	162	210	179
20 to 24	329	533	533
25 to 29	231	347	276
30 to 34	100	137	152
35 to 39	52	54	66
40 to 49	47	46	46
50 and Older	16	22	25
Success Rate			
Less than 19	89.5%	82.9%	82.1%
20 to 24	79.0%	85.2%	83.9%
25 to 29	81.0%	81.6%	78.6%
30 to 34	82.0%	82.5%	84.2%
35 to 39	73.1%	72.2%	86.4%
40 to 49	80.9%	78.3%	73.9%
50 and Older	87.5%	81.8%	84.0%
Retention Rate			
Less than 19	95.1%	89.5%	93.3%
20 to 24	87.8%	90.1%	89.9%
25 to 29	87.9%	86.5%	85.1%
30 to 34	85.0%	89.8%	90.1%
35 to 39	80.8%	74.1%	90.9%
40 to 49	87.2%	91.3%	80.4%
50 and Older	87.5%	86.4%	100.0%

Table 1.15 Program Review Data for Chemistry by Ethnicity

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	**937**	**1,349**	**1,277**
-Overall Success Rate	81.5%	82.8%	82.3%
-Overall Retention Rate	88.4%	88.4%	89.3%
RACE/ETHNICITY			
African American	46	48	44
American Indian	14	8	19
Asian	495	679	634
Hispanic/Latino	71	148	125
Pacific Islander	7	4	3
White	243	411	426
Unknown	61	51	26
Success Rate			
African American	58.7%	72.9%	70.5%
American Indian	92.9%	87.5%	73.7%
Asian	84.0%	83.5%	85.3%
Hispanic/Latino	64.8%	76.4%	67.2%
Pacific Islander	71.4%	100.0%	33.3%
White	81.9%	83.9%	83.6%
Unknown	95.1%	90.2%	92.3%
Retention Rate			
African American	80.4%	89.6%	90.9%
American Indian	100.0%	87.5%	84.2%
Asian	88.3%	86.9%	90.2%
Hispanic/Latino	76.1%	89.9%	86.4%
Pacific Islander	71.4%	100.0%	66.7%
White	90.9%	89.3%	88.3%
Unknown	98.4%	94.1%	100.0%

Internal Analysis: Geology

Enrollment and FTES:

The number of enrollments in Geology courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the number of enrollments in 2012-2013.

The FTES in Geology credit courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in with in comparison with FTES in 2012-2013.

Efficiency (Number of Sections, Fill Rate, FTEF/30, WSCH/FTEF):

The number of sections in Geology courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the number of sections in 2012-2013.

The fill rate in Geology courses in 2014-2015 showed **a slight increase (1.0% to 4.9%)** from 2013-2014 and **a substantial decrease (> -10.0%)** in comparison with the fill rate in 2012-2013.

The FTEF/30 ratio in Geology courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the FTEF/30 ratio in 2012-2013.

The WSCH/FTEF ratio in Geology courses in 2014-2015 showed **a moderate decrease (-5.0% to -10.0%)** from 2013-2014 and **a substantial decrease (> -10.0%)** in comparison with the WSCH/FTEF ratio in 2012-2013.

Couse Success Rate:

The course success rate in Geology courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the course success rate in 2012-2013. The course success rate from 2014-2015 was **minimal to no difference** than the college average (65.4%) and was **substantially higher (> 10.0%)** than the institutional-set standard for course success (55.4%).

Term Retention Rate:

The term retention rate in Geology courses in 2014-2015 showed **a slight increase (1.0% to 4.9%)** from 2013-2014 and **a slight increase (1.0% to 4.9%)** in comparison with the term retention rate in 2012-2013. The term retention from 2014-2015 was **minimal to no difference** than the college average (82.3%) and was **substantially higher (> 10.0%)** than the institutional-set standard of term retention (70.3%).

Awards (Degrees and Certificates):

The number of degrees in Geology in 2014-2015 showed **minimal to no difference** from 2013-2014 and showed **minimal to no difference** in comparison with the number of degrees awarded in 2012-2013.

The number of certificates in Geology in 2014-2015 showed **minimal to no difference** from 2013-2014 and showed **minimal to no difference** in comparison with the number of certificates awarded in 2012-2013.

Modality:
The graded enrollment rose by over 30% (1081 – 1429) from 2013 – 2015. This increase of roughly 350 students was due primarily to an increase of 200 in the number of telecourse students and an increase of 150 in the number of online students.

Demographics:
There was a slight decrease in the relative number of female students during this time period. This is most likely related to the increased proportion of incarcerated students that take telecourses.

Implications of Change

No major changes at this time except those related to migrating to CANVAS.

Table 1.16 Program Productivity Data for Geology

Academic Year	2012-13	2013-14	2014-15
CENSUS Enrollment	1,107	1,214	1,428
FTES	90.9	101.1	128.9
FTEF30	1.4	1.9	2.6
WSCH/FTEF	1,053	862	817
Sections	12.0	17.0	26.0
Fill Rate	89.3%	73.8%	75.6%
DEGREES AND CERTIFICATES			
Associate Degrees	0	0	0
Certificates	0	0	0
STUDENT DEMOGRAPHICS			
GRADED Enrollment	1,081	1,209	1,429
GENDER			
Female	40.1%	41.4%	36.7%
Male	58.4%	57.6%	62.1%
Unknown	1.6%	1.1%	1.2%
AGE at TERM			
Less than 19	10.8%	8.6%	8.5%
20 to 24	27.4%	24.3%	25.0%
25 to 29	20.7%	18.3%	18.6%
30 to 34	13.0%	16.2%	14.3%
35 to 39	9.6%	10.3%	11.2%
40 to 49	12.1%	13.7%	13.9%
50 and Older	6.3%	8.5%	8.6%
RACE/ETHNICITY			
African American	11.2%	11.8%	11.5%
American Indian	2.7%	3.2%	3.8%
Asian	16.1%	13.6%	15.8%
Hispanic/Latino	16.7%	18.2%	18.6%
Pacific Islander	0.6%	1.1%	0.8%
White	47.1%	48.5%	46.9%
Unknown	5.6%	3.6%	2.4%
INSTRUCTIONAL MODALITY			
Cable	0.0%	0.0%	0.0%
Correspondence	0.0%	0.0%	0.0%
Hybrid	0.0%	0.9%	2.3%
Online	64.9%	61.6%	59.3%
Self-Paced	0.0%	0.0%	0.0%
Telecourse	35.1%	37.5%	38.3%
Traditional	0.0%	0.0%	0.0%

Table 1.17 Program Review Data for Geology by Modality

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	1,081	1,209	1,429
-Overall Success Rate	61.0%	69.5%	70.6%
-Overall Retention Rate	84.9%	84.9%	86.8%
INSTRUCTIONAL MODALITY			
Cable	0	0	0
Correspondence	0	0	0
Hybrid	0	11	33
Online	702	745	848
Self-Paced	0	0	0
Telecourse	379	453	548
Traditional	0	0	0
Success Rate			
Cable			
Correspondence			
Hybrid		90.9%	66.7%
Online	61.7%	70.5%	69.3%
Self-Paced			
Telecourse	59.6%	67.3%	72.8%
Traditional			
Retention Rate			
Cable			
Correspondence			
Hybrid		90.9%	81.8%
Online	86.5%	85.9%	84.9%
Self-Paced			
Telecourse	82.1%	83.0%	90.1%
Traditional			

Table 1.18 Program Review Data for Geology by Gender

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	1,081	1,209	1,429
-Overall Success Rate	61.0%	69.5%	70.6%
-Overall Retention Rate	84.9%	84.9%	86.8%
STUDENT DEMOGRAPHICS			
GENDER			
Female	433	500	525
Male	631	696	887
Unknown	17	13	17
Success Rate			
- Female	61.4%	72.4%	71.0%
- Male	60.4%	67.1%	70.2%
- Unknown	70.6%	84.6%	76.5%
Retention Rate			
- Female	86.8%	87.2%	86.9%
- Male	83.4%	82.9%	86.9%
- Unknown	94.1%	100.0%	82.4%

Table 1.19 Program Review Data for Geology by Age Group

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	1,081	1,209	1,429
-Overall Success Rate	61.0%	69.5%	70.6%
-Overall Retention Rate	84.9%	84.9%	86.8%
AGE at TERM			
Less than 19	117	104	121
20 to 24	296	294	357
25 to 29	224	221	266
30 to 34	141	196	204
35 to 39	104	125	160
40 to 49	131	166	198
50 and Older	68	103	123
Success Rate			
Less than 19	70.9%	78.8%	71.9%
20 to 24	54.1%	63.3%	72.8%
25 to 29	60.7%	70.1%	68.0%
30 to 34	58.2%	65.8%	69.6%
35 to 39	68.3%	73.6%	70.6%
40 to 49	65.6%	72.9%	73.2%
50 and Older	60.3%	72.8%	65.9%
Retention Rate			
Less than 19	92.3%	88.5%	83.5%
20 to 24	85.5%	82.7%	85.7%
25 to 29	85.7%	81.9%	88.3%
30 to 34	81.6%	83.7%	87.3%
35 to 39	80.8%	88.8%	87.5%
40 to 49	85.5%	88.0%	87.9%
50 and Older	79.4%	86.4%	87.0%

Table 1.20 Program Review Data for Geology by Ethnicity

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	1,081	1,209	1,429
-Overall Success Rate	61.0%	69.5%	70.6%
-Overall Retention Rate	84.9%	84.9%	86.8%
RACE/ETHNICITY			
African American	121	143	165
American Indian	29	39	55
Asian	174	164	226
Hispanic/Latino	180	220	266
Pacific Islander	7	13	12
White	509	586	670
Unknown	61	44	35
Success Rate			
African American	45.5%	53.8%	48.5%
American Indian	51.7%	64.1%	61.8%
Asian	62.1%	72.6%	77.0%
Hispanic/Latino	57.8%	68.2%	73.3%
Pacific Islander	71.4%	84.6%	66.7%
White	65.8%	73.0%	74.2%
Unknown	60.7%	68.2%	60.0%
Retention Rate			
African American	75.2%	79.7%	76.4%
American Indian	82.8%	84.6%	85.5%
Asian	82.2%	84.8%	85.0%
Hispanic/Latino	83.9%	81.4%	90.6%
Pacific Islander	100.0%	92.3%	75.0%
White	88.4%	87.0%	89.3%
Unknown	85.2%	88.6%	80.0%

Internal Analysis: Marine Science

Enrollment and FTES:

The number of enrollments in Marine Science courses in 2014-2015 showed **a moderate increase (5.0% to 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the number of enrollments in 2012-2013.

The FTES in Marine Science credit courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in with in comparison with FTES in 2012-2013.

Efficiency (Number of Sections, Fill Rate, FTEF/30, WSCH/FTEF):

The number of sections in Marine Science courses in 2014-2015 showed **a substantial decrease (> -10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the number of sections in 2012-2013.

The fill rate in Marine Science courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial decrease (> -10.0%)** in comparison with the fill rate in 2012-2013.

The FTEF/30 ratio in Marine Science courses in 2014-2015 showed **a substantial decrease (> -10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the FTEF/30 ratio in 2012-2013.

The WSCH/FTEF ratio in Marine Science courses in 2014-2015 showed **a substantial increase (> 10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the WSCH/FTEF ratio in 2012-2013.

Couse Success Rate:

The course success rate in Marine Science courses in 2014-2015 showed **a substantial decrease (> -10.0%)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the course success rate in 2012-2013. The course success rate from 2014-2015 was **minimal to no difference** than the college average (65.4%) and was **slightly higher (1.0% to 4.9%)** than the institutional-set standard for course success (55.4%).

Term Retention Rate:

The term retention rate in Marine Science courses in 2014-2015 showed **a slight decrease (-1.0 to -4.9)** from 2013-2014 and **a slight decrease (-1.0 to -4.9)** in comparison with the term retention rate in 2012-2013. The term retention from 2014-2015 was **minimal to no difference** than the college average (82.3%) and was **moderately higher (5.0% to 10.0%)** than the institutional-set standard of term retention (70.3%).

Awards (Degrees and Certificates):

The number of degrees in Marine Science in 2014-2015 showed **minimal to no difference** from 2013-2014 and showed **minimal to no difference** in comparison with the number of degrees awarded in 2012-2013.

The number of certificates in Marine Science in 2014-2015 showed **minimal to no difference** from 2013-2014 and showed **minimal to no difference** in comparison with the number of certificates awarded in 2012-2013.

Modality:

Marine science will be undergoing a change as CANVAS is now the current LMS. As it requires time to build a course of excellence, it could not be offered in Fall of 2016 as our concentration was on the heavily desired online Biology 100 course. Considerations for the future include looking at the option of a hybrid course as well as an online CANVAS course. Our Full time facultyfor Marine Science, Dr. Tanya Murray, has been filling in last year with the absence of Dr. Pedro Gutierrez and teaching his Cell and Molecular Biology course. She will now be allowed to pursue the development a course of excellence that can be delivered online, hybrid and onsite. We are also looking to add a C-ID to the Marine Science so that it can be found under BIO as well as MRSC.

Demographics:

Coastline Community College cannot complete with Orange Coast College in the number of Marine Sciences classes. However, we can offer hybrid and online and we have the Newport Beach Center campus with its proximity to the Pacific Ocean.

Implications of Change

Developing CANVAS and hybrid classes with allow us to grow the Marine Science department within the constraints of our available faculty to teach it and our instructional lab associates to support it.

Table 1.21 Program Productivity Data for Marine Science

Academic Year	2012-13	2013-14	2014-15
CENSUS Enrollment	366	439	481
FTES	28.7	36.8	41.5
FTEF30	0.4	0.7	0.6
WSCH/FTEF	1,086	863	1,201
Sections	4.0	6.0	5.0
Fill Rate	91.5%	62.9%	69.7%
DEGREES AND CERTIFICATES			
Associate Degrees	0	0	0
Certificates	0	0	0
STUDENT DEMOGRAPHICS			
GRADED Enrollment	361	437	481
GENDER			
Female	29.9%	21.3%	14.8%
Male	70.1%	78.3%	84.4%
Unknown	0.0%	0.5%	0.8%
AGE at TERM			
Less than 19	5.0%	7.8%	5.2%
20 to 24	30.2%	16.9%	17.9%
25 to 29	18.8%	16.7%	17.9%
30 to 34	16.1%	16.5%	15.8%
35 to 39	10.2%	14.4%	13.1%
40 to 49	15.2%	14.9%	18.9%
50 and Older	4.4%	12.8%	11.2%
RACE/ETHNICITY			
African American	10.2%	14.2%	15.6%
American Indian	6.4%	5.5%	4.4%

Asian	13.3%	12.1%	12.3%
Hispanic/Latino	16.3%	14.6%	18.9%
Pacific Islander	0.6%	1.1%	1.2%
White	46.3%	49.9%	44.7%
Unknown	6.9%	2.5%	2.9%
INSTRUCTIONAL MODALITY			
Cable	0.0%	0.0%	0.0%
Correspondence	0.0%	0.0%	0.0%
Hybrid	0.0%	0.0%	0.0%
Online	0.0%	0.0%	0.0%
Self-Paced	0.0%	0.0%	0.0%
Telecourse	79.2%	85.4%	91.5%
Traditional	20.8%	14.6%	8.5%

Table 1.22 Program Review Data for Marine Science by Modality

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	361	437	481
-Overall Success Rate	68.1%	65.7%	57.8%
-Overall Retention Rate	83.1%	83.8%	79.8%
INSTRUCTIONAL MODALITY			
Cable	0	0	0
Correspondence	0	0	0
Hybrid	0	0	0
Online	0	0	0
Self-Paced	0	0	0
Telecourse	286	373	440
Traditional	75	64	41
Success Rate			
Cable			
Correspondence			
Hybrid			
Online			
Self-Paced			
Telecourse	68.5%	67.0%	58.0%
Traditional	66.7%	57.8%	56.1%
Retention Rate			
Cable			
Correspondence			
Hybrid			
Online			
Self-Paced			
Telecourse	83.6%	84.5%	80.9%
Traditional	81.3%	79.7%	68.3%

Table 1.23 Program Review Data for Marine Science by Gender

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	361	437	481
-Overall Success Rate	68.1%	65.7%	57.8%
-Overall Retention Rate	83.1%	83.8%	79.8%
STUDENT DEMOGRAPHICS			
GENDER			
Female	108	93	71
Male	253	342	406
Unknown	0	2	4
Success Rate			
- Female	67.6%	67.7%	52.1%
- Male	68.4%	64.9%	59.1%
- Unknown		100.0%	25.0%
Retention Rate			
- Female	78.7%	83.9%	71.8%
- Male	85.0%	83.6%	81.0%
- Unknown		100.0%	100.0%

Table 1.24 Program Review Data for Marine Science by Age Group

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	361	437	481
-Overall Success Rate	68.1%	65.7%	57.8%
-Overall Retention Rate	83.1%	83.8%	79.8%
AGE at TERM			
Less than 19	18	34	25
20 to 24	109	74	86
25 to 29	68	73	86
30 to 34	58	72	76
35 to 39	37	63	63
40 to 49	55	65	91
50 and Older	16	56	54
Success Rate			
Less than 19	77.8%	67.6%	68.0%
20 to 24	67.0%	55.4%	54.7%
25 to 29	60.3%	68.5%	52.3%
30 to 34	63.8%	63.9%	64.5%
35 to 39	81.1%	73.0%	50.8%
40 to 49	70.9%	64.6%	61.5%
50 and Older	75.0%	69.6%	59.3%
Retention Rate			
Less than 19	77.8%	85.3%	80.0%
20 to 24	88.1%	82.4%	77.9%
25 to 29	83.8%	84.9%	77.9%
30 to 34	77.6%	83.3%	81.6%
35 to 39	81.1%	87.3%	82.5%
40 to 49	83.6%	76.9%	78.0%
50 and Older	75.0%	87.5%	83.3%

Table 1.25 Program Review Data for Marine Science by Ethnicity

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	361	437	481
-Overall Success Rate	68.1%	65.7%	57.8%
-Overall Retention Rate	83.1%	83.8%	79.8%
RACE/ETHNICITY			
African American	37	62	75
American Indian	23	24	21
Asian	48	53	59
Hispanic/Latino	59	64	91
Pacific Islander	2	5	6
White	167	218	215
Unknown	25	11	14
Success Rate			
African American	54.1%	51.6%	53.3%
American Indian	73.9%	70.8%	66.7%
Asian	79.2%	62.3%	61.0%
Hispanic/Latino	64.4%	65.6%	51.6%
Pacific Islander	50.0%	60.0%	33.3%
White	68.9%	69.7%	60.5%
Unknown	68.0%	72.7%	64.3%
Retention Rate			
African American	89.2%	82.3%	82.7%
American Indian	78.3%	79.2%	81.0%
Asian	85.4%	79.2%	78.0%
Hispanic/Latino	83.1%	82.8%	74.7%
Pacific Islander	100.0%	80.0%	83.3%
White	79.6%	85.8%	80.5%
Unknown	96.0%	90.9%	92.9%

Internal Analysis: Physics

Enrollment and FTES:

The number of enrollments in Physics courses in 2014-2015 showed **a moderate decrease (-5.0% to -10.0%)** from 2013-2014 and **a moderate increase (5.0% to 10.0%)** in comparison with the number of enrollments in 2012-2013.

The FTES in Physics credit courses in 2014-2015 showed **a moderate decrease (-5.0% to -10.0%)** from 2013-2014 and **a moderate increase (5.0% to 10.0%)** in with in comparison with FTES in 2012-2013.

Efficiency (Number of Sections, Fill Rate, FTEF/30, WSCH/FTEF):

The number of sections in Physics courses in 2014-2015 showed **minimal to no difference** from 2013-2014 and **minimal to no difference** in comparison with the number of sections in 2012-2013.

The fill rate in Physics courses in 2014-2015 showed **a moderate decrease (-5.0% to -10.0%)** from 2013-2014 and **a substantial decrease (> -10.0%)** in comparison with the fill rate in 2012-2013. This is due to the following: 1. An increase in the max number of students for courses with a lab component due to additional equipment, and 2. Offering a new course in 2015 (Phys 185) that had a small number of students.

The FTEF/30 ratio in Physics courses in 2014-2015 showed **minimal to no difference** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the FTEF/30 ratio in 2012-2013.

The WSCH/FTEF ratio in Physics courses in 2014-2015 showed **a moderate decrease (-5.0% to -10.0%)** from 2013-2014 and **a moderate decrease (-5.0% to -10.0%)** in comparison with the WSCH/FTEF ratio in 2012-2013.

Couse Success Rate:

The course success rate in Physics courses in 2014-2015 showed **a slight decrease (-1.0 to -4.9)** from 2013-2014 and **a substantial increase (> 10.0%)** in comparison with the course success rate in 2012-2013. The course success rate from 2014-2015 was **minimal to no difference** than the college average (65.4%) and was **substantially higher (> 10.0%)** than the institutional-set standard for course success (55.4%).

Term Retention Rate:

The term retention rate in Physics courses in 2014-2015 showed **a moderate increase (5.0% to 10.0%)** from 2013-2014 and **minimal to no difference** in comparison with the term retention rate in 2012-2013. The term retention from 2014-2015 was **minimal to no difference** than the college average (82.3%) and was **substantially higher (> 10.0%)** than the institutional-set standard of term retention (70.3%).

Awards (Degrees and Certificates):

The number of degrees in Physics in 2014-2015 showed **minimal to no difference** from 2013-2014 and showed **minimal to no difference** in comparison with the number of degrees awarded in 2012-2013.

The number of certificates in Physics in 2014-2015 showed **minimal to no difference** from 2013-2014 and showed **minimal to no difference** in comparison with the number of certificates awarded in 2012-2013.

Modality:
The graded enrollent grew by 10% (307 – 340) from 2013 – 2015. There was a drop in the onsite enrollment associated with the move to the Newport Beach Center in 2013, however this was offset by an increase in the number of online students who take Phys C110. The online and hybrid courses have been extensively overhauled as part of the migration to CANVAS.

Demographics:
The only demographic that showed any significant change during this period was the number of students between ages 20-24, which increased from 39% to 46%. It should be noted that a significant percentage of students who take Phys120 and Phys125 have already received degrees, and are changing fields to Allied Health positions such as Physicians Assistants and Physical Therapists.

Implications of Change

The major focus of 2013 - 2015 was to overhaul the lecture and lab content for the existing physics courses, to establish a Physics ADT, and to create the Caculus-based courses appropriate for STEM majors. The emphasis over the next 5 years needs to shift from creation to growth. This will require the addition of a FT instructor for Physics. There is currently only one FT instructor for both Physics and Astronomy (David Devine). As mentioned in the Biology and Chemistry sections, this also required the hiring of an additional FT Instructional Lab Associate. Devine has been assuming that role for Physics and Astronomy due to understaffing, however that will no longer be possible as the number of Physics and Astronomy offerings continues to increase.

Table 1.26 Program Productivity Data for Physics

Academic Year	2012-13	2013-14	2014-15
CENSUS Enrollment	312	370	336
FTES	32.3	36.4	33.6
FTEF30	1.0	1.2	1.2
WSCH/FTEF	513	505	466
Sections	7.0	7.0	7.0
Fill Rate	86.7%	83.7%	77.4%
DEGREES AND CERTIFICATES			
Associate Degrees	0	0	0
Certificates	0	0	0
STUDENT DEMOGRAPHICS			
GRADED Enrollment	307	355	339
GENDER			
Female	51.5%	58.6%	54.0%
Male	45.9%	39.7%	43.7%
Unknown	2.6%	1.7%	2.4%
AGE at TERM			
Less than 19	13.0%	11.0%	10.6%
20 to 24	38.8%	38.0%	45.7%
25 to 29	20.5%	22.8%	19.5%
30 to 34	11.1%	13.0%	10.6%
35 to 39	3.9%	3.4%	5.3%
40 to 49	8.5%	7.6%	4.4%
50 and Older	4.2%	4.2%	3.8%
RACE/ETHNICITY			
African American	4.9%	5.1%	2.4%
American Indian	1.3%	2.8%	2.9%
Asian	44.0%	42.0%	41.9%
Hispanic/Latino	7.2%	8.7%	11.2%
Pacific Islander	1.6%	0.6%	0.3%
White	33.9%	35.2%	40.1%
Unknown	7.2%	5.6%	1.2%
INSTRUCTIONAL MODALITY			
Cable	0.0%	0.0%	0.0%
Correspondence	0.0%	0.0%	0.0%
Hybrid	40.1%	23.1%	27.7%
Online	59.9%	76.9%	72.3%
Self-Paced	0.0%	0.0%	0.0%
Telecourse	0.0%	0.0%	0.0%
Traditional	0.0%	0.0%	0.0%

Table 1.27 Program Review Data for Physics by Modality

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	307	355	339
-Overall Success Rate	77.9%	76.6%	75.8%
-Overall Retention Rate	88.6%	83.9%	88.5%
INSTRUCTIONAL MODALITY			
Cable	0	0	0
Correspondence	0	0	0
Hybrid	123	82	94
Online	184	273	245
Self-Paced	0	0	0
Telecourse	0	0	0
Traditional	0	0	0
Success Rate			
Cable			
Correspondence			
Hybrid	83.7%	75.6%	78.7%
Online	73.9%	76.9%	74.7%
Self-Paced			
Telecourse			
Traditional			
Retention Rate			
Cable			
Correspondence			
Hybrid	89.4%	85.4%	84.0%
Online	88.0%	83.5%	90.2%
Self-Paced			
Telecourse			
Traditional			

Table 1.28 Program Review Data for Physics by Gender

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	307	355	339
-Overall Success Rate	77.9%	76.6%	75.8%
-Overall Retention Rate	88.6%	83.9%	88.5%
STUDENT DEMOGRAPHICS			
GENDER			
Female	158	208	183
Male	141	141	148
Unknown	8	6	8
Success Rate			
- Female	81.0%	77.9%	79.8%
- Male	75.2%	74.5%	70.3%
- Unknown	62.5%	83.3%	87.5%
Retention Rate			
- Female	90.5%	83.7%	91.3%
- Male	87.2%	84.4%	85.1%
- Unknown	75.0%	83.3%	87.5%

Table 1.29 Program Review Data for Physics by Age Group

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	307	355	339
-Overall Success Rate	77.9%	76.6%	75.8%
-Overall Retention Rate	88.6%	83.9%	88.5%
AGE at TERM			
Less than 19	40	39	36
20 to 24	119	135	155
25 to 29	63	81	66
30 to 34	34	46	36
35 to 39	12	12	18
40 to 49	26	27	15
50 and Older	13	15	13
Success Rate			
Less than 19	70.0%	74.4%	72.2%
20 to 24	82.4%	78.5%	71.0%
25 to 29	77.8%	80.2%	81.8%
30 to 34	76.5%	78.3%	91.7%
35 to 39	83.3%	75.0%	83.3%
40 to 49	69.2%	55.6%	66.7%
50 and Older	76.9%	80.0%	69.2%
Retention Rate			
Less than 19	85.0%	82.1%	83.3%
20 to 24	91.6%	86.7%	86.5%
25 to 29	87.3%	88.9%	92.4%
30 to 34	88.2%	82.6%	97.2%
35 to 39	91.7%	75.0%	94.4%
40 to 49	80.8%	66.7%	80.0%
50 and Older	92.3%	80.0%	84.6%

Table 1.30 Program Review Data for Physics by Ethnicity

Academic Year	2012-13	2013-14	2014-15
GRADED ENROLLMENT	307	355	339
-Overall Success Rate	77.9%	76.6%	75.8%
-Overall Retention Rate	88.6%	83.9%	88.5%
RACE/ETHNICITY			
African American	15	18	8
American Indian	4	10	10
Asian	135	149	142
Hispanic/Latino	22	31	38
Pacific Islander	5	2	1
White	104	125	136
Unknown	22	20	4
Success Rate			
African American	53.3%	55.6%	87.5%
American Indian	100.0%	60.0%	40.0%
Asian	88.1%	79.2%	77.5%
Hispanic/Latino	63.6%	77.4%	73.7%
Pacific Islander	20.0%	100.0%	0.0%
White	72.1%	76.8%	77.2%
Unknown	81.8%	80.0%	75.0%
Retention Rate			
African American	73.3%	66.7%	100.0%
American Indian	100.0%	80.0%	70.0%
Asian	93.3%	86.6%	88.0%
Hispanic/Latino	81.8%	87.1%	92.1%
Pacific Islander	60.0%	100.0%	100.0%
White	86.5%	83.2%	88.2%
Unknown	90.9%	80.0%	100.0%

Program Student Learning Outcome(s)

N/A

Progress on Forward Strategy Initiative(s)

Progress on 5-year Goals from most recent Science Program Review.

Table 1.31 Progress on Forward Strategies

Initiative(s)	Status	Progress Status Description	Outcome(s)
Astronomy: Develop Labs and Lab Manuals for ASTR100 Lab (2013-2017)	In Progress	Equipment purchased Spring 2015, Labs being revised.	ASTR100 Lab offered for the first time in Spring 2016
Astronomy: Acquire a minimum of five 8-inch telescopes for hands-on labs and field trips. (2013-2017)	Completed	Equipment purchased, labs being designed.	Telescopes and associated accessories purchased in Spring 2015 (THANKS!!).
Astronomy: Work with OCC to teach advanced ASTR courses. (2013-2018)	Not Started	On hold until CCC ASTR and PHYS curricula are stable.	n/a
Biology: Develop and offer Health Science Certificate and AS degree and explore partnerships with local health care facilities	100% Complete	*Health Care Certificate is in its third year of awards. It is being revised this fall to include the option of Chem 180/180L or the soon to be Chem 180C for Chem 110. This way the certificate can apply to pre-physical therapy, pre-med, pre-dental among others.*	
Biology: Implementation of Biology major courses	100% Complete	*The Biology majors courses are in their second year of being offered*	
Biology: Redesign general biology laboratory instructional materials	100% Complete	*Adopted different lab manual and implemented new experiments with lottery*	
Biology: Develop independent study course involving human cadaveric dissection	Partially Complete	*Course is developed and approved at State level. However we are in need of a specially designed room*	*We are in need of a specially designed room, hopefully room at the Newport Beach Center*
Biology: Offer Biology AS-T degree	Partially Complete	*The Biology ADT is awaiting the C-IDs from Chemistry. The Chemistry C-IDs (Chem 180/ 185 and 180L/185L and 180C) are in the Curriculum submission process.*	
Biology: Biotechnician Certificate	In Review	*The Biotech Certificate needs a home-preferably in a new lab at Garden Grove and possibly as a CTE*	

Chemistry: Implement Organic Chemistry sequence for CHEM and BIO majors.	In Progress	Although courses are currently offered, articulation agreements have not been finalized. Additional load to Instructional Associate.	Organic Chemistry started in 2014. Organic Chemistry full time faculty hired.
Chemistry: Establish AS-T Degree	Not Started	Chemistry AS-T has been established, but has not been published yet. Preparatory steps: 1) align current CHEM 180 and 185 syllabi with C-ID course descriptors; 2) submit for C-ID approval	
Chemistry: Offer CHEM130 in hybrid format.	In Progress		
Geology: Continue to update and review modalities for course offering. Add GEOL 105 and 105L for summer.	Complete		Hired two new adjunct instructors and are offering two additional sections of online GEOL C105L Lab
Geology: Develop site-based lab for major.	Not Started		
Physics: Purchase lab and computer equipment for full set of Phys120/125 labs. (2013-2015)	Complete	Equipment purchased in Spring 2013.	Equipment for 20 new labs has been implemented at NBC beginning Fall 2013.
Physics: Design a full suite of labs and associated lab manuals for Phys120/125. (2013-2015)	In Progress	Labs have been designed and revised. New revisions related to CANVAS migration for 2016-2017.	
Physics: Establish AS-T Degree in Physics (2013-2016)	In Progress	Physics curricula needs to be revised to match Carnegie units. Will take place in 2016-2017.	State approval for AS-T and associated C-ID designations granted in 2014-2015.

Section 2: Human Capital Planning

Staffing

Table 2.1 Staffing Plan

Year	Administrator	Management	F/T Faculty	Adjunct	Classified	Hourly
Previous year 2014-2015	Position Title (# of positions)	Position Title (# of positions)	Position Title (# of positions)	Position Title (# of positions)	Position Title (# of positions)	Position Title (# of positions)
Current year 2015-2016	Position Title (# of positions)	Position Title (# of positions)	INSTRUCTOR BIOLOGY (2) INSTRUCTOR MICROBIOLOGY AND PHYSIOLOGY(1) INSTRUCTOR DIVERSITY OF ORGANISMS AND MARINE SCIENCE (1) INSTRUCTOR ANATOMY AND PHSYIOLOGY (1) ASTR/PHYS (1) GEOL(1) CHEM (2)	Adjuncts ASTR100 (1) BIO 100 (3) BIO 100L (4) BIO 120 (1), BIO 200 (1), BIO 210(3) BIO 220 (6), BIO 225 (3), CHEM105 (1) CHEM110 (3) CHEM130 (1) CHEM180 (1) CHEM180L (1) CHEM185(1) CHEM185L (1) MRSC 100 (1) PHYS110 (1)	INSTRUCTIONAL LAB ASSOCIATE (1)	INSTRUCTIONAL LAB ASSOCIATE TEMPORARY (2)
1 year 2016-2017	Position Title (# of positions)	Position Title (# of positions)	INSTRUCTOR BIOLOGY (2) INSTRUCTOR MICROBIOLOGY AND PHYSIOLOGY(1) INSTRUCTOR DIVERSITY OF ORGANISMS AND MARINE SCIENCE (1) INSTRUCTOR ANATOMY AND PHSYIOLOGY (1) ASTR/PHYS (1) GEOL(1) CHEM (2)	Adjuncts ASTR100 (1) BIO 100 (3) BIO 100L (4), BIO 120 (1), BIO 200 (1), BIO 210(3) BIO 220 (6) BIO 225 (3) BIO 282 (1) BIO 283(1) MRSC 100 (1) CHEM110 (3) CHEM130 (1) CHEM140 (1) CHEM180 (1) CHEM180L (1) CHEM185(1) CHEM185L (1) MRSC 100 (1) PHYS110 (1) PHYS120 (1)	INSTRUCTIONAL LAB ASSOCIATES (3)	Position Title (# of positions)
2 years 2017-2018	Position Title (# of positions)	Position Title (# of positions)	INSTRUCTOR BIOLOGY (2) INSTRUCTOR MICROBIOLOGY AND PHYSIOLOGY(1) INSTRUCTOR DIVERSITY OF ORGANISMS AND	Adjuncts ASTR100 (1) BIO 100 (4) BIO 100L (4) BIO 120 (1) Bio 180 (1) BIO 200 (1) BIO 210(3)	INSTRUCTIONAL LAB ASSOCIATES (3)	Position Title (# of positions)

			MARINE SCIENCE (1) INSTRUCTOR ANATOMY AND PHSYIOLOGY (1) ASTR/PHYS (2) CHEM (2) GEO (2)	BIO 220 (6) BIO 225 (3) BIO 282 (1) BIO 283 (1) CHEM110 (3) CHEM130 (1) CHEM140 (1) CHEM180 (1) CHEM180L (1) CHEM185(1) CHEM185L (1) MRSC 100 (1) PHYS110 (1) PHYS120 (1)		
3 years 2018-2019	Position Title (# of positions)	Position Title (# of positions)	INSTRUCTOR BIOLOGY (2) INSTRUCTOR MICROBIOLOGY AND PHYSIOLOGY(1) INSTRUCTOR DIVERSITY OF ORGANISMS AND MARINE SCIENCE (1) INSTRUCTOR ANATOMY AND PHSYIOLOGY (1) ASTR/PHYS (2)	BIO 100 (5) BIO 100L (4) BIO 120 (1) Bio 180 (1) BIO 200 (1) BIO 210(3) BIO 220 (6) BIO 225 (4) BIO 282 (1) BIO 283(1) MRSC 100 (2) PHYS110 (1) PHYS120 (1)	INSTRUCTIONAL LAB ASSOCIATES (3)	Position Title (# of positions)

We are very understaffed with INSTRUCTIONAL LABORATORY ASSOCIATES. The INSTRUCTIONAL LABORATORY ASSOCIATES are responsible for ordering and maintaining supplies, setting up laboratory experiments and following all safety guidelines across 3 campuses for our multitude of different laboratories that cross several disciplines. Presently, we have only on full-time INSTRUCTIONAL LABORATORY ASSOCIATE and two TEMPORAY part time INSTRUCTIONAL LABORATORY ASSOCIATES.

In order to maintain safety, as well and order and stock supplies, and set up the cultures, chemicals, gels, and specimens need for each lab across three campuses, at the minimum, we require:

1.) One full time INSTRUCTIONAL LABORATORY ASSOCIATE for Chemistry-need to hire
2.) One full time INSTRUCITONAL LABORATROY ASSOCIATE for Microbiology- we have
3.) One full time or 3 part time INSTRUCTIONAL LABORATORY ASSOCIATES for Bio 180, Bio185, Bio 210, Bio220, Bio 225, MRSC 100 , ASTR, PHYS. GEOL (at present, we have two part-time temporary)

Professional Development

Biology:

Tanya Murray was an early adopter of Canvas and participated in training and an online course since October 2015. BIOL100 courses were standardized based on her model course. She attended a Webinar provided by NROC on successful online strategies and transitioning new and non-traditional students into their major-level courses, during August 2015. She peer reviewed a paper on plant-mycorrhizal dynamics for the Plant Ecology journal, December 2015, and volunteers as a Science Mentor for FLOW and Amigos de Bolsa Chica, through the Bolsa Chica State Park in Huntington Beach, reviewing the organization's research protocol and provide guidance for student research at the high school and college level for biology courses since August '15. She completed a manuscript reviewing the neurobiology of Alzheimer's Disease, focusing on 5HT neurotransmission and the activity of current and novel pharmaceutical agents as a contracted piece for Arbor Scientia in Dec 2015. Her majors level biology students participated in research with Bolsa Chica State Park using field collection and identification techniques, and managed a large data set of plankton diversity and relative abundance collected from the Bolsa Chica wetland and tidal inlet.

Deborah Henry

1.) Attended the California Association of Neurological Surgeons Annual Meeting in January 2015, Newport Beach
2.) Attended the Faculty Success Center Workshop in Cerritos on March 27, 2015
3.) Completed the Reading Apprenticeship course from West-Ed March –May 2015
4.) Attended the Council of State Neurosurgical Societies meeting in Washington DC in May 2015
5,) Attended the Western Neurosurgical Society 61st Annual Meeting in Kauai in September 2015
6.) Attended the Council of State Neurosurgical Societies in New Orleans in October 2015

Chemistry:

Jean Dupon acts as the Chemical Safety officer for Coastline Community College and is a member of the Educational Committee for the Orange County section of the American Chemical Society. She recently updated and extended the course outlines for the Chemistry curriculum at Coastline, including comprehensive course descriptions and outlining the combination of the separate Lecture and Laboratory components of the General Chemistry and Organic Chemistry sequences into combined courses with single grading. She attended the NSF-sponsored Chemistry Collaborations, Workshops and Community of

Scholars (CCWCS) workshop entitled " Active Learning in Organic Chemistry" in 2015. She has participated in courses in the Chemistry of Biomolecules offered by MIT open courseware (ocw.mit.edu) and an Adobe Digital Creativity course. She is presently writing a new laboratory manual for use in Chem 130 for introduction in Spring 2017 as well as a laboratory manual for the Organic Chemistry series: Chem 220/225.

Physics and Astronomy:

David Devine attended the American Astronomical Society meeting in San Diego June 2016. He continues to design and build laboratory exercises for ASTR100L, PHYS120, PHYS125, and PHYS185.

Section 3: Facilities Planning

Facility Assessment

1) HUMAN CADAVER DISSECTION room needed. This room needs TO HAVE A CONTRACTOR AND ARCHITECT DESIGN ADEQUATE VENTILATION in the small room off of lab 206. WE WOULD NEED TO PURCHASE A REFRIGERATION /COOLER SYSTEM FOR THE CADAVER AND A DISSECTION TABLE. The room needs a secure lock and no visibility to the outside (no windows people can look through). These are requirements from the UCI cadaver donation program.

2.) GARDEN GROVE SCIENCE CENTER-Once we secure the remainder of the Garden Grove building, relocate computer rooms (classrooms are currently only being used at night) and convert rooms 302, 304, and 306 to biological science laboratory rooms with a Prep room in-between. Move Bio 220 and Bio 225 from Le-Jao where there is only one exit door, no adequate storage, a noisy refrigerator and no prep room. This room can either be converted or kept as a Bio 100 laboratory room.
Reasons
a.) Promotes safety as the Garden Grove laboratories will have 2 exit doors
b.) Promotes safety as there will be a Prep Room for storage of biological specimens
c.) Creates the ability to have a full time Instructional Laboratory Associate at each center. Right now, one person travels between three centers which means two centers do not have an overseer at any point in time.
d.) Creates student success as there will be an additional center (Newport Beach being the other) where students can go to complete all their science requirements
e.) Allows the possibility of the Le-Jao laboratory (which is inadequate)

Here were some comments from the 2008 Program Review from instructors on laboratory space:

The lab (Le-Jao) is very crowded as it is used for Anatomy, Physiology and Biology. It is packed with equipments and materials for the three course. It needs a storage room. I feel that we need to build a new lab and hire a lab tech.

Laboratory equipment is sometimes missing, falling apart, or not in adequate numbers for the amount of students. As the laboratory is used for many classes, it would be helpful to have a laboratory tech assigned for maintenance, storage and continued quality managed of equipment.

Student use of laboratory equipment inevitably includes some breakage and damage. To this end, adequate replacements of frequently utilized consumables, instrument maintenance and spare glassware to augment broken pieces are necessary to continue offering students an appropriate experience in laboratory science.

Increases in the number of students enrolled in laboratory chemistry courses has not opened additional lab sections and the sections currently open are progressively more crowded. Long term planning for chemistry courses at Coastline, both at our Garden Grove and Newport Beach campuses should include consideration of an additional laboratory space, which could be accommodated using the current prep spaces.

Adequacy of instructional facilities and lab equipment. We are lacking. The lab, even though just remodeled is very disorganized. We also lack the needed turn around time to convert from microbio to chem. There is also a safety issue in that if anything is left out we have no clue as to what it is. For the chemist we have no idea how toxic the bacteria is the microbio lab is using and for the microbio, they may not know how toxic our chemicals are. So we are then in turn exposing each other to toxins. One possible fix is to build another lab and separate us into two rooms. This would relieve congestion and allow us to get organized. (Garden Grove Center)

Section 4: Technology Planning

Technology Assessment

1. Need for 3-D printer for biological studies including development of artificial limbs

2.) Continued utilization of the newly installed Smart Boards in the classrooms. Docu-cameras for any additional room or lab.

Section 5: New Initiatives

Biological Sciences

Initiative(s)	Status	Reasons	TIME TO IMPLEMENT
Develop laboratory space for the Human Cadaver lab	PRIOR GOAL	Students applying to occupational therapy programs are required to observe/participate in human cadaver dissections. Promotes student success in the Anatomical Sciences	12-18 months
Develop laboratory space at Garden Grove Center (see below)	NEW	The laboratory at Le-Jao proposes a hazard as there is only one exit door. It also has no prep room, a noisy refrigerator and now no storage.	2-3 years
Dune Mapping at Bolsa Chica State Park/propagation of dune plants/ pollinator studies **3-D printer**	NEW	Promote the Diversity of Organisms course and Biology ADT	1-12 months
Redesign Microbiology manual	NEW	Science readily changes	12-18 months
Implement OER	STARTED	Saves students money.	Spring or fall 2017
Bring back the Health Science Triathlon	RESTART	Promotes School unity. This was previously abandoned due to lack of support from Dean at the time and no funding.	May 2017
Create hybrid course in Marine Science	Planned for spring 2017	Offers class in different modalitiy from sister colleges.	Spring 2017
Promote Health Science Certificate	ONGOING	Promotes program and enrollment as well as certificates	Ongoing
Develop Faculty Web pages	NEW	Allows students to learn about faculty and the programs available at Coastline. Could lead to increased degrees and certificates.	Depends on support from college

Stem Program	NEW	Creates pathways for science students to earn degrees and certificates	3-5 years
Split Department into two: Biological Science Department and Physical Science Department	NEW	Creates easier understanding among students, faculty and staff	2016-2017 and ongoing
Hire two new Full time Instructional Lab Associates	PRIOR GOAL	Promotes School unity. This was previously abandoned due to lack of support from Dean at the	Immediate need
Hire FT Physics Faculty	New	Necessary for growth of Physics and Astronomy programs. Currently 1 FT Faciulty for both disciplines.	1-2 years

Describe how the initiative supports the college mission:
Please see reasons in table above

What college goal does the initiative align with? Select one

xx☐ Student Success
☐ Access, Persistence and Retention
☐ Innovation
☐ Partnerships
☐ Culture of planning, evidence and inquiry
☐ Growth and efficiency

What College planning document(s) does the initiative align with? Select all that apply

☐x Educational Master Plan
☐x Staffing
x☐ Facilities
☐ Technology

What evidence supports this initiative? Select all that apply

☐x Learning Outcome (SLO/PSLO) assessment
☐x Internal Research (Student achievement, program performance)
☐x External Research (Academic literature, market assessment, audit findings, compliance mandates)

Describe how the evidence supports this initiative.

Recommended resource(s) needed for initiative achievement:
Please see below under next section.

What is the anticipated outcome of completing the initiative?

Current student body includes many students that have completed their undergraduate education and are returning to school to complete prerequisites required for graduate programs in the biological sciences such as medical, veterinary, physician's assistant, physical therapy, and occupational therapy schools, in addition to graduate programs in ecology, marine biology/science, and/or biology.

1.) Cadaver lab supports our always impacted Bio 220 Human Anatomy class, gives the advance student the opportunity for advanced study and fulfills a requirement for the pre-occupational therapy student. From a student with her permission:

From: Kendall Ohara [kohara6@student.cccd.edu<mailto:kohara6@student.cccd.edu>]
Sent: Saturday, September 10, 2016 4:21 PM
To: Henry, Deborah
Subject: Question!

Hello Dr. Henry,

Sorry for bother you on a Saturday but I noticed that in our syllabus we won't have an opportunity to examine a human cadaver and the graduate school that I am planning to go to requires me to receive at least 6+ hours of working with a human cadaver. Is there any way that I would be able to access this through Coastline? Please let me know! Thank you so much!

-Kendall Ohara

2.) GARDEN GROVE SCIENCE CENTER- will
a.) Promote safety as the Garden Grove laboratories will have 2 exit doors
b.) Promote safety as there will be a Prep Room for storage of biological specimens
c.) Create the ability to have a full time Instructional Laboratory Associate at each center. Right now, one person travels between three centers which means two centers do not have an overseer at any point in time.
d.) Create student success as there will be an additional center (Newport Beach being the other) where students can go to complete all their science requirements
e.) Allow the possibility of the Le-Jao laboratory (which is inadequate) to be refurbished into a need for the Le-Jao Center.

3.) Internship and research opportunities help set these students apart from a very large extremely competitive pool of applicants and can provide opportunities not found at other community colleges. This will grow our science program by offering unique career-prep opportunities, and increase CCC interaction and commitment to our greater community. It will strengthen our contributions to the science community and contribute to our STEM initiatives by adding technology and engineering opportunities (both with mathematical components) to our biology courses.

4.) Creates a manual that is up-to-date with current biological techniques

5.) OER saves students money

6.) Health Science Triathlon will be scheduled for May 2017 pending funding.

7.) Marine Science hybrid will allow for a different modality from our sister colleges

8.) Promoting the Health Science Certificate will increase the number of certificates awarded.

9.) Faculty web pages will promote the faculty and programs

10.) STEM program-to increase the ADT in the sciences

11.) Splitting the Department into to Chairs of separate departments (Chair of the Physical Sciences and Chair of the Biological Sciences) rather than already divided co-chairs of the same department will allow for students, staff, and faculty to know who to communicated with for questions, allow for a better understanding of the supplies and support staff needed, and a program review that is specific to each department. A letter is being drafted that will be submitted to the Academic Senate president and to the Department Chairs Committee to split into two separate departments.

12.) The need for two more full time Instructional Lab Associates is a priority and is addressed under staffing requests.

Provide a timeline and timeframe from initiative inception to completion.

See chart under NEW INITIATIVES, Biological Sciences

Section 6: Prioritization

List and prioritize resource requests BIOLOGICAL SCIENCE DEPARTMENT

Initiative	Resource(s)	Est. Cost	Funding Type	Health, Safety Compliance	Evidence	College Goal	To be Completed by	Priority
Effectively support the science labs and supplies	Two new Full time Instructional Lab Associates	100,000	Ongoing	Yes	External Research	Student Success, Completion, and Achievement	2017-18	
Advance the teaching and learning experience in science courses.	Anatomical Models, histology slides, microscopes	20,000	Ongoing	No	Internal Research	Student Success, Completion, and Achievement	2017-18	
Human Cadaver laboratory and refrigeration	Room off of 206	TBA	One-time	Yes	External Research	Student Success, Completion, and Achievement	2017-18	
Develop laboratory space at Garden Grove Center to allows the program to grow STEM at two centers	Room 302, 304, 306 in Garden Grove	TBA	One-time	Yes	External Research; Internal Research	Student Success, Completion, and Achievement	2017-18	
Develop student research opportunities to contribute to our STEM initiatives	Events, 3D printer	500	Ongoing	No	Internal research	Partnerships and Community Engagement	2017-18	
Safely store microbiology specimens	Deep freezer	6,000	One-time	Yes	Storage of microbiology	Fiscal Stewardship, Scalability, and Sustainability	2017-18	
Develop faculty websites				No			2017-18	
Maintain the ability to teach science labs through the provision of ongoing laboratory supplies across all science courses	Science lab supplies	75,000	Ongoing	Yes	Maintains ability to teach science labs	Student Success, Completion, and Achievement; Student Retention and Persistence; Fiscal Stewardship, Scalability, and Sustainability	2017-18	

PRIORITIZATION:

1.) TWO ADDITIONAL FULL TIME INSTRUCTIONAL LAB ASSOCIATES: SEE BELOW under staffing.

2.) ANATOMICAL MODELS/HISTOLOGY SUPPLIES/ MOLECULAR BIOLOGY SUPPLIES. We have models at the Le-Jao center that were here when I started in January 2007 that were broken then and never were replaced. The number of models is inadequate for the number of students. Presently, there is one arm/leg model per average of six students. Ideally, it would be one per two students. Also the skeleton models need replaced at Le-Jao. There are not enough microscopes at the Garden Grove Center. Histology slides need to be in 3 labs as we use them simultaneously. Cell and Molecular Biology will be offered at both NBC and Garden Grove thus additional supplies needed.

3.) HUMAN CADAVER ROOM WILL NEED TO HAVE A CONTRACTOR AND ARCHITECT DESIGN ADEQUATE VENTILATION in the small room off of lab 206. WE WOULD NEED TO PURCHASE A REFRIGERATION /COOLER SYSTEM FOR THE CADAVER AND A DISSECTION TABLE. The room needs a secure lock and no visibility to the outside (no windows people can look through). These are requirements from the UCI cadaver donation program.

4.) GARDEN GROVE SCIENCE CENTER-Once we secure the remainder of the Garden Grove building, relocate computer rooms (classrooms are currently only being used at night) and convert rooms 302, 304, and 306 to biological science laboratory rooms with a Prep room in-between. Move Bio 220 and Bio 225 from Le-Jao where there is only one exit door, no adequate storage, a noisy refrigerator and no prep room. This room can either be converted or kept as a Bio 100 laboratory room.
Reasons
a.) Promotes safety as the Garden Grove laboratories will have 2 exit doors
b.) Promotes safety as there will be a Prep Room for storage of biological specimens
c.) Creates the ability to have a full time Instructional Laboratory Associate at each center. Right now, one person travels between three centers which means two centers do not have an overseer at any point in time.
d.) Creates student success as there will be an additional center (Newport Beach being the other) where students can go to complete all their science requirements
e.) Allows the possibility of the Le-Jao laboratory (which is inadequate)

Here were some comments from the 2008 Program Review from instructors on laboratory space:

The lab (Le-Jao) is very crowded as it is used for Anatomy, Physiology and Biology. It is packed with equipments and materials for the three course. It needs a storage room. I feel that we need to build a new lab and hire a lab tech.

Laboratory equipment is sometimes missing, falling apart, or not in adequate numbers for the amount of students. As the laboratory is used for many classes, it would be helpful to have a laboratory tech assigned for maintenance, storage and continued quality managed of equipment.

Adequacy of instructional facilities and lab equipment. We are lacking. The lab, even though just remodeled is very disorganized. We also lack the needed turn around time to convert from microbio to chem. There is also a safety issue in that if anything is left out we have no clue as to what it is. For the chemist we have no idea how toxic the bacteria is the microbio lab is using and for the microbio, they may not know how toxic our chemicals are. So we are then in turn exposing each other to toxins. One possible fix is to build another lab and separate us into two rooms. This would relieve congestion and allow us to get organized. (Garden Grove Center)

5.) Research opportunities at Bolsa Chica (and elsewhere) will grow our science program by offering unique career-prep opportunities, and increase CCC interaction and commitment to our greater community. It will strengthen our contributions to the science community and contribute to our STEM initiatives by adding technology and engineering opportunities (both with mathematical components) to our biology courses. 3-D printing will allow for student research and service opportunities.

6.) Deep freezer requested in 2013-2014 program review.

7.) Faculty web pages would help us promote courses, degrees, and certificates and increase enrollment.

8.) Ongoing laboratory supplies to run our labs-this is our annual budget for informational purposes and for budget planning.

List and prioritize staffing requests. For full-time positions, include a Coast District approved job description.

Initiative	Resource(s)	Est. Cost	Funding Type	Health, Safety Compliance	Evidence	College Goal	To be Completed by	Priority
Hire two new Full time Instructional Lab Associates		90-100K	Faculty side of 50/50	YES	Maintain Chemicals and Biological Specimens	YES	IMMEDIATE	IMMEDIATE

Halvorson, Mary

Debbie needs this for her Prog Review

From: Hayes, Joan
Sent: Wednesday, August 17, 2016 11:45 AM
To: Halvorson, Mary
Subject: Instructional Associate Information

Dear Mary,

Here is the job announcement for the instructional associate job, which Angelique Hill holds now.

SALARY: $47,484.00 - $57,780.00 annually plus the cost of benefits

This is a regular, full-time, 12-month per year position.

Details in the job announcement are pasted below, just as illustration of the level of education, knowledge and experience for that pay range. This information was current in October 2015:

From: Barber, Shaunick
Sent: Tuesday, March 01, 2016 9:51 AM
To: Halvorson, Mary; Henry, Deborah
Cc: Hayes, Joan
Subject: RE: **instructional Lab Associate**

Here's the full job posting from when Angelique was hired:

COAST COMMUNITY COLLEGE DISTRICT
invites applications for the position of:
Instructional Associate (Biological Sciences/Chemistry)

SALARY:

$47,484.00 - $57,780.00 Annually

OPENING DATE:

10/21/15

CLOSING DATE:

11/03/15 11:59 PM

DEFINITION:

Under general supervision, provides instructional assistance and support tasks to students in the Biological Science and Chemistry classes in accordance with assignments and directions from a course instructor or other

academic personnel; provides technical assistance to students, faculty, and staff in the use of technology in instructional programs; monitors and reports student progress; maintains Biological Science and Chemistry lab operations; provides instructional support for the students enrolled in Biological Science and Chemistry classes/labs requiring technical competence in basic math, general biology, chemistry, use of instructional equipment and software, and basic academic skills.

DISTINGUISHING CHARACTERISTICS: Positions assigned to the class of Instructional Associate perform duties to assist and support a classroom instructor or other academic personnel, in a tutorial program, classroom, lab, or office setting. Classification in the instructional associate area requires individual emphasis, based on the instructional assignment. Each specialized emphasis (i.e.: Instructional Associate/ Arts) constitutes a separate classification.

Specific tasks may vary depending upon the subject area and discipline to which assigned. Work is performed within a framework of established procedures which may not require the physical presence of the instructor or other academic personnel.

Positions in this class may exist in any of the instructional departments or divisions. Incumbents in the class of Instructional Associate are expected to have completed a minimum of two years of college with a major in the subject area to which their position is assigned. Recruitment to fill a position in this class should include the instructional area of assignment, such as "Instructional Associate (Art)" or "Instructional Associate (Mathematics)".

EXAMPLES OF DUTIES: Duties may include, but are not limited to, the following:

a. Assist instructional staff with the instruction, demonstration, and presentation of course assignments and materials for groups of students in the Biological Science and Chemistry courses.

b. Assist in the preparation of instructional activities.

c. Assist students with assignments, course content, and study skills; evaluate student work and coordinate appropriate tutorial sessions and supplemental instruction as needed.

d. Assist in the coordination, operation, and maintenance of the science laboratory set up, including preparation of solutions, dispensing chemicals, preparing specimens, setting up equipment, and disposing of chemicals and specimens.

e. Set up and maintain specialized instruments and equipment and present information in a logical, accurate and interesting manner to students.

f. Orient students and new faculty on the procedures used and technology available to facilitate learning.

g. Monitor and record student progress and attendance; prepare and maintain related records and reports; evaluate student needs; confer with instructors regarding student progress.

h. Recommend appropriate instructional materials and technology to be used by students; maintain and test instructional materials and technology to ensure instructional methods and course content is current, accurate, and relevant in accordance with instructor's curriculum guidelines.

i. Demonstrate or describe the proper operation of equipment, instruments and supplies used in lab work.

j. Assist students with technical difficulties regarding assignments.

k. Respond to student questions and provide information regarding subject matter.

l. Research and troubleshoot technical problems when students, staff, and faculty have difficulty with the instructional equipment, course management systems, or log-on procedures.

m. Assist in recruiting, hiring, training, and supervising student assistants.

n. Assist instructors in preparation of manuals, handouts, and training/teaching materials.

o. Demonstrate and enforce proper health and safety procedures and regulations in the laboratories and ensure that students are aware of such regulations.

p. Perform general clerical functions critical to the maintenance and efficiency of the laboratories.

q. Participate in development of the budget and monitor expenditures.

r. Make minor repairs and adjustments to laboratory equipment, such as microscopes; and arrange for necessary repairs of other equipment.

s. Oversee schedule and training of students and maintain hourly employee records.

t. Maintain accurate records.

u. Consult with vendors regarding supplies, materials and equipment as needed.

v. Monitor inventory and order materials and equipment needed to maintain office, lab, and/or classroom.

w. Participate in department meetings with instructional staff to exchange information, provide periodic reports and to remain current in instructional support techniques and procedures.
x. Perform related duties and responsibilities as required.

QUALIFICATIONS:

MINIMUM QUALIFICATIONS:

Knowledge of:
1. Basic math, general biology and chemistry at the community college level.
2. Supplies and equipment of a life science and chemistry laboratories and record keeping consistent with inventory control.
3. Proper laboratory techniques for preparation and storage of solutions.
4. Appropriate safety precautions and procedures as directed by District Health and Safety Officers.
5. Instructional and tutorial methods and techniques.
6. Student guidance principles and practices.
7. Community college curriculum and educational requirements.
8. Correct English usage, grammar, spelling, punctuation, and vocabulary.
9. Oral and written communication skills.
10. Computer assisted instruction, word processing software, and network applications.
11. Principles and procedures of record keeping.
12. Tools, techniques, equipment, basic study skills, and applicable technology used in the Biological Sciences/Chemistry laboratory.
13. Interpersonal skills using tact, patience and consideration.

Ability to:
14. Properly set up, operate and demonstrate the correct operation/handling of materials and equipment used in biology and chemistry laboratories.
15. Work with biological sciences and chemistry chemicals, specimens, and related equipment.
16. Perform basic math, chemistry calculations, and college level work in assigned academic field.
17. Maintain chemicals and dispose of waste according to procedures specified by District Health and Safety.
18. Supervise the work of student assistants and maintain hourly employee records.
19. Maintain an inventory on a computer in compliance with the Office of Health and Safety.
20. Understand and carry out oral and written instructions.
21. Provide effective instruction and assistance to students enrolled in the biology and chemistry classes.
22. Present and demonstrate instructional materials and tutor in at least one subject area.
23. Assess student achievement and encourage student participation.
24. Troubleshoot and maintain instructional materials and technology.
25. Respond to questions and assist students as needed.
26. Maintain accurate records.
27. Work independently in the absence of supervision.
28. Plan, organize, and schedule a variety of work and activities.
29. Oversee the work of others.
30. Understand and follow oral and written instructions.
31. Recommend appropriate instructional materials and resources.
32. Communicate clearly and concisely, both orally and in writing.
33. Perform basic clerical duties and work with statistical data.
34. Establish and maintain effective working relationships with those contacted in the course of work, including individuals from diverse academic, socioeconomic, cultural, and ethnic and disability backgrounds.

Education and Experience:

35. Completion of two years of college with major course work in chemistry or biology or the equivalent (must include organic chemistry and general biology classes).
36. Two years experience in an instructional setting as a tutor or in a similar position.
37. Or, any combination of experience and training that would likely provide the required knowledge and abilities.

LICENSES OR OTHER REQUIREMENTS:
Some positions in this classification may require a valid California driver's license and/or possession of a certificate of completion from an accredited college or agency relative to the assigned area. Continuing education, training or certification may be required.

CONDITIONS OF EMPLOYMENT:

This is a regular, full-time, 12-month per year position. The normal hours of work will be 8:00 a.m. and 5 p.m., Monday through Friday. The effective date of employment will be arranged with the supervisor. Incumbent's schedule will involve working at three different college sites. Incumbent will handle biological and chemical hazardous materials.

* Regular attendance is considered an essential job function; the inability to meet attendance requirements may preclude the employee from retaining employment.
* The person holding this position is considered a mandated reporter under the California Child Abuse and Neglect Reporting Act and is required to comply with the requirements set forth in Coast Community College District policies, procedures, and Title IX. (Reference: BP/AP 5910)
* The Coast Community College District celebrates all forms of diversity and is deeply committed to fostering an inclusive environment within which students, staff, administrators, and faculty thrive. Individual's interested in advancing the District's strategic diversity goals are strongly encouraged to apply. Reasonable accommodations will be provided for qualified applicants with disabilities who self-disclose.

My pleasure!

Joan