COASTLINE
COMMUNITY COLLEGE

Mathematics Program
Program Review 2014

Review Team
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October 2014

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Executive Summary

The program review process was completed by Lisa Lee, Department Chair with input from other faculty and students. Program Review surveys from students and faculty and annual institutional planning report contributed the indication of the needs and suggestions to the Mathematics Department.

From 2011-2014 the Mathematics Department has consistently been one of the top three FTES-generating disciplines at the college, at one point actually being number two. The department has three full-time faculty, while adjuncts grew from 12 in 2010 to 24 in 2014 now, making nearly most sections at maximum capacity.
A culture of collegiality has been maintained where every faculty member supports and contributes to the success of everyone else. Although the Coastline campus is not centralized, the Math Department chair maintains constant contact with everyone through e-mails and cell phones. The three full-time faculty meet off-campus for lunch every month and, the Department Chair holds mid-semester meetings on a regular basis to keep everyone in touch with each other and what's going on with their classes, within Distance Learning and within the college.

Graphing calculators were purchased and have been acquired to enable all students and faculty who need it to incorporate technology into their classes. Teacher computers were installed in every classroom. The advanced TI-84 Plus Graphing Calculator SmartView program is installed in the computers including classrooms, faculty offices, Student Success Center for all of three learning centers (Le-Jao, Garden Grove and Newport Beach). The TI-84 Plus SmartView is not only available for faculty but also for students. Each of the three full-time faculty has a Tablet PC to facilitate teaching and communicating mathematics online; there is only one Tablet PC available for adjunct faculty to check out to use in the class either onsite or online.

The math tutoring program offered through Student Success Center is expanded to a three-day weekly at the Fountain Valley College Center and five-day per week program at the Westminster Le-Jao Center, Garden Grove Center, and Newport Beach Center. Embedded tutoring services are also available for onsite and online courses.

The creation of student learning outcomes (SLOs) for every math course has allowed faculty to engage in a meaningful dialogue about just what should be taught and assessed in every math course. Overlap was eliminated, especially in the developmental math courses, to help ensure student success. Course names and numbers were changed, in some cases, to help support the common course numbering movement within the district. The Math Department Chair, Lisa Lee, meets on a regular basis with the Math Department Chairs at the other two colleges in the district, to share curriculum and pedagogy and maintain communication. This should prove more and more valuable as inter-district communication

increases and inter-district practices are adopted in common to reduce the budget and better serve students.

As 89% of the enrollment is online, the challenge to maintain distance learning math course success and retention rates has been met with a 25% higher rate of retention and an almost 20% higher rate of success than the statewide averages for general math in the distance learning format. This could partly be attributed our student population which is slightly older and perhaps more mature than the state-wide average but may also be the result of the department's culture of collaboration, the peer cross-training within the department and the amount of time we've spent with this method of instruction.

New five-year goals for the program include:

1. Hire two full-time math instructors due to the top ranking of FTEs, **14.8**, in the entire college and 147 LHEs taught by adjunct instructors.
2. Establish Math Academy or Bridge Program in summer and winter sessions to prepare students before classes start; and to increase the math success and retention rate, especially for STAR and STAR2 programs.
3. Create "Pathway" curriculum to help students succeed in college level math courses at a faster pace.
4. Acquire a mobile "smart cart" with laptops, printer and wifi at Newport Beach Center for math classrooms.
5. Develop a system to mentor and evaluate new math instructors, especially online.
6. Create a delicate Math Lab for math students. In the student survey, one of the suggestions for the Student Success Center tutoring was to have a quiet place to study. Currently, the Center has English and other subjects' tutoring in the same room.
7. Math tutors shall be recommended by math instructors or interviewed by a math instructor prior to hiring.
8. Develop and plan a system of an efficient online tutoring; improve online embedded tutoring services; provide a coordinator for this effort; implement a system that allows the Student Success Center to track individual student assistance and sends that information to each instructor as well as sending student success center use by math students to the department.
9. Discuss implementation of a STEM or STEAM Program and provide appropriate permanent office space for full-time faculty at the Newport Beach Center.
10. Provide more technology training programs for math faculty.
11. Participate with the college bookstore and the textbook publishing companies to help lower the cost of textbooks to students, and to more clearly outline all the options available to students for instructional materials; investigate free or low-cost online educational resources to help lower the cost of textbooks to students.
12. Implement the Statway program.
13. Procure software programs for math faculty and students including, but not limited to statistics.
14. Equip classrooms where math is taught with furniture and equipment that promote active leaning, such as mobile chairs with laptops and individual student whiteboards.

15. Modify the math placement system to include a student's recent performance in math classes that do not transfer (such as high school students).

Mathematics Program

Process

The Math Department's Program Review was led by Department Chair Lisa Lee, with primary support from the department's other two full-time faculty: Fred Feldon and Mitchell Alves. During the course of the review, student and faculty surveys were developed and deployed. Classroom-based and online students, including military, were asked to complete an online survey, which 198 students completed and returned. All 15 faculty members teaching in summer 2014 completed an online survey.

Enrollment, FTES, and student demographic data was provided by the Office of Instructional Research; and program cost data was provided by the Office of Fiscal Services.

Description

Overview

Before Fred Feldon, full-time instructor, was hired at Coastline, the Math Department was run by either an instructional administrator (Discipline Dean or Vice President of Instruction) or, for a short period, by a department chair who did not receive tenure. Fred Feldon was hired in September, 1995, and received tenure in 1999. A second full-time math faculty member, Lisa Lee, was hired in 2001. Lisa received tenure in 2005. A third full-time math faculty member, Malinni Roeun, was hired in 2008 and did not receive tenure in 2012; a full-time math faculty, Mitchell Alves, transferred from Orange Coast College to fill the third full-time faculty position.

After the new coordinator of Student Success Center, Daniel Pittaway was hired in 2011, math placement testing preparation, and computerized preparatory courses for students wishing to review or refresh their math skills offered through Student Success Center were abolished. The Math Department includes at this time: (1) non-transferable, degree-applicable general education courses including basic math, pre-algebra, beginning algebra, and intermediate algebra; and (2) transfer-level courses including quantitative reasoning, math for elementary teachers courses, college algebra, trigonometry, finite math, business calculus, introduction to statistics, the three - semester series of calculus and Linear Algebra/Differential Equations. The curriculum of two new accelerated math courses were developed and led by department chair, Lisa Lee and another Part-time math faculty, Chau Tran. The first course was offered in 2013, combination of Basic Math and Pre-algebra. The second accelerated math course, combination of Elementary Algebra and Intermediate Algebra was offered in 2014. Both courses are currently offered online with a maximum enrollment.

Like most departments in the college, the Math Department has a largely non-traditional student population consisting mostly of returning adults with family and work obligations. The department offers a wide variety of classes for students in the most popular of formats which include evening face-to-face courses and online courses. Cable courses have had their target audience widened to include

incarcerated, hospitalized and traditional students without a computer and/or Internet access. The Math Department continues to use the online program, free to students with the purchase of a new textbook, called *MyMathLab* (from Pearson Education) which is used for both distance learning classes and as supplemental material for all other courses.

Certificate Requirements

The Math Department does not offer any certificates. The department's course work does, however, support a couple of certificate programs. Math C007 Business Mathematics is a required course in the Retail Management Certificate of Achievement; and Math C103 Statistics for Elementary School Teachers, Math C104 Real Numbers for Elementary School Teachers, and Math C106 Geometry for Elementary School Teachers are elective courses for the Educational Studies Certificate of Accomplishment.

In addition, the college offers an Associate in Arts Math major, which requires 20 units of course work (Math C180 Calculus 1, C185 Calculus 2, C280 Calculus with Analytic Geometry 3, and C285 Linear Algebra and Differential Equations). Students also have the option of pursuing an A.A. degree with an 18-unit Area of Emphasis in Science and Math, which requires at least one science course and at least one math course.

Curriculum Review

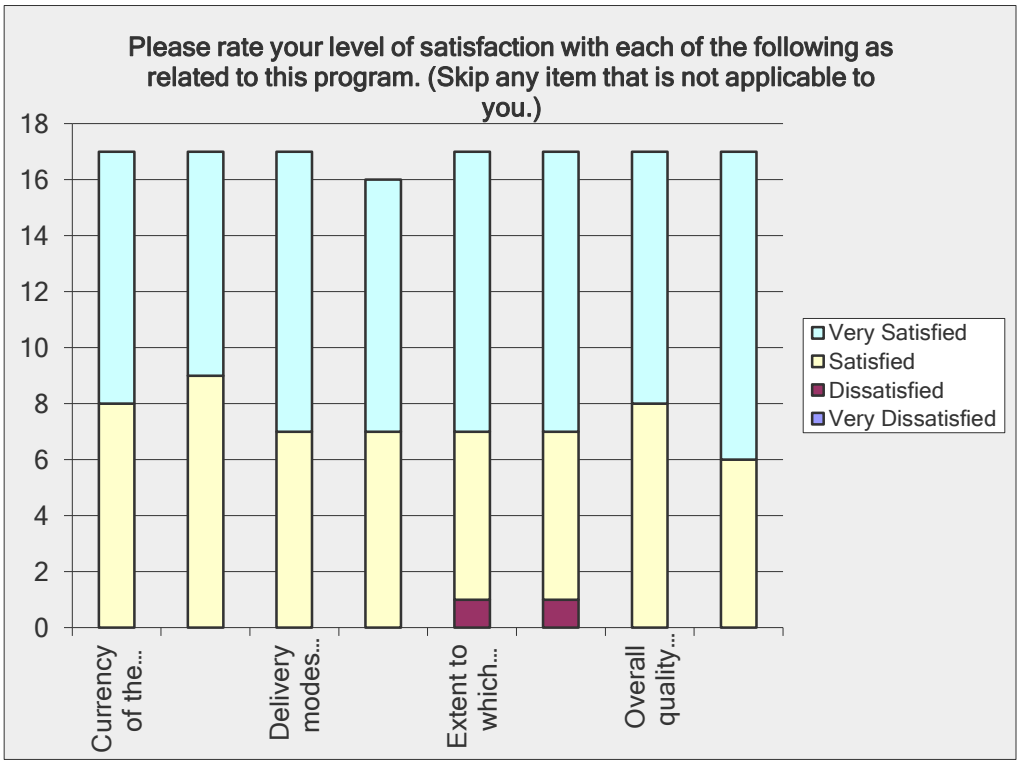
Review of the Math Department's curriculum was conducted by Mitchell Alves, Fred Feldon, Lisa Lee, and Chau Tran. Revised course outlines will be submitted to the Curriculum Committee before the end of October, 2014.

Banner ID	Title	Current Outline	SLO	Status
MATH C001	Mathematics Tutoring (AD)	5/4/2001	No	Retired 10/18/09
MATH C002	Mastering the SAT I (Engl 002/Math 002)	11/5/1998	No	Retired 10/18/09
MATH C003	Basic Mathematics (AD)	6/14/1996	No	Retired 10/18/09
MATH C004	Math Skills 1 (AD)	1/14/2009*	No	Retired 1/14/12
MATH C005	Beginning Mathematics	3/14/2014	Yes	
MATH C006	Math Skills 2	1/26/2009	No	Retired 1/14/12
MATH C007	Business Mathematics	3/26/2010*	Yes	Retired 3/26/10
MATH C008	Pre-Algebra	3/14/2014	Yes	
MATH C010	Elementary Algebra	3/14/2014*	Yes	
MATH C010A	Elementary Algebra Part I	8/22/2007	Yes	Retired 10/18/09
MATH C010B	Elementary Algebra Part II	8/22/2007	Yes	Retired 10/18/09
MATH C020	Plane Geometry	3/26/2013	Yes	
MATH C030	Intermediate Algebra	3/14/2014	Yes	
MATH C040	Intermediate Algebra for Liberal Arts Students	2/20/2009	No	Retired 1/14/12
MATH C070	Intermediate Algebra and Trigonometry	4/20/2004	No	Retired 1/14/12
MATH C080	Math Assessment for Student Success	1/14/2009	No	Retired 1/14/12
MATH C100	Liberal Arts Math	4/25/2014	Yes	
MATH C103	Statistics for Elementary Teachers	4/25/2014	Yes	
MATH C104	Real Numbers for Elementary Teachers	4/25/2014	Yes	
MATH C105	Technical Mathematics	3/2/1997	No	Retired 10/18/09
MATH C106	Geometry for Elementary Teachers	4/25/2014	Yes	
MATH C115	College Algebra	4/25/2014	Yes	
MATH C120	Trigonometry	4/25/2014	Yes	

Banner ID	Title	Current Outline	SLO	Status
MATH C140	Survey of Calculus	10/26/14	Yes	
MATH C150	Finite Mathematics with Applications	4/25/2014	Yes	
MATH C160	Introduction to Statistics	4/25/2014	Yes	
MATH C170	Precalculus	10/26/2014	Yes	
MATH C180	Calculus 1	2/16/2010	Yes	
MATH C185	Calculus 2	2/16/2010	Yes	
MATH C225	Discrete Mathematics	1/18/2005	No	Retired 1/14/12
MATH C226	Introduction to Abstract Mathematics	1/20/2005	No	Retired 1/14/12
MATH C280	Calculus 3	3/26/2010*	Yes	
MATH C285	Introduction to Linear Algebra/Differential Equations	3/26/2010*	Yes	
MATH C403	Basic Math	3/10/1998	No	Retired 09/18/09

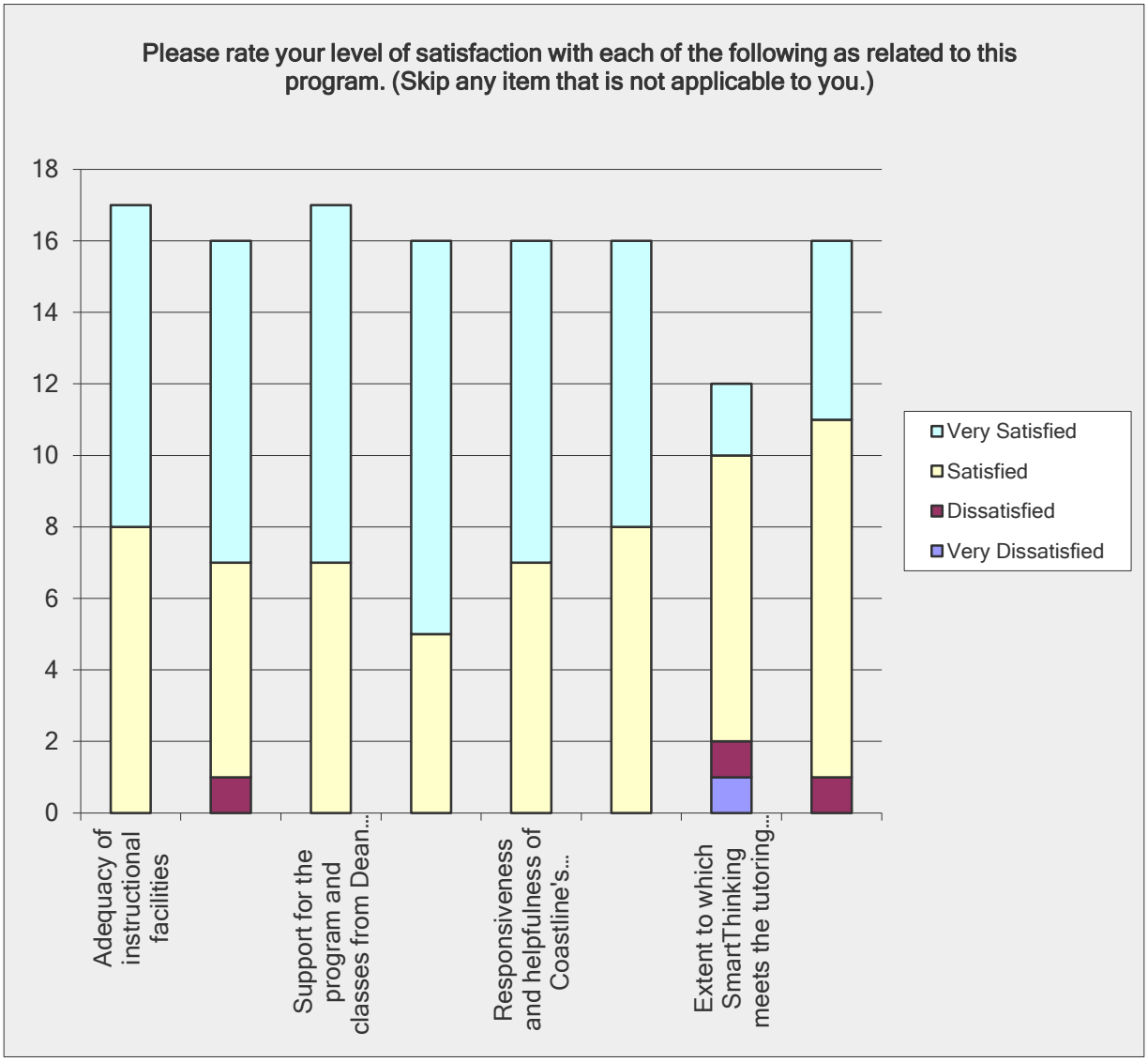
Faculty Satisfaction in Math Department

Based on the Faculty Survey, faculty members in the department were 60% very satisfied and 40% satisfied with the currency of the curriculum; 53% very satisfied and 47% satisfied with the variety of classes; 67% very satisfied and 33% satisfied with delivery modes; 64% very satisfied and 36% satisfied with relevance of classes to students' needs; 67% very satisfied and 27% satisfied with extend to which faculty and staff meet the needs of culturally diverse students; 67% very satisfied and 27% satisfied with extend to which faculty and staff meet the needs of non-traditional students (older adults, working adults, active duty military, and etc.); 60% very satisfied and 40% satisfied with overall quality of the program; and 73% very satisfied and 27% satisfied with your own success teaching in the program. See the chart below.



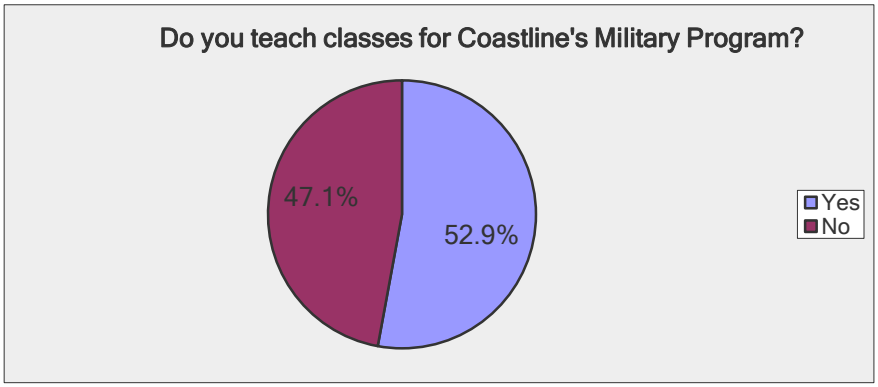
Supports from Department, Distance Learning, and Student Success Center

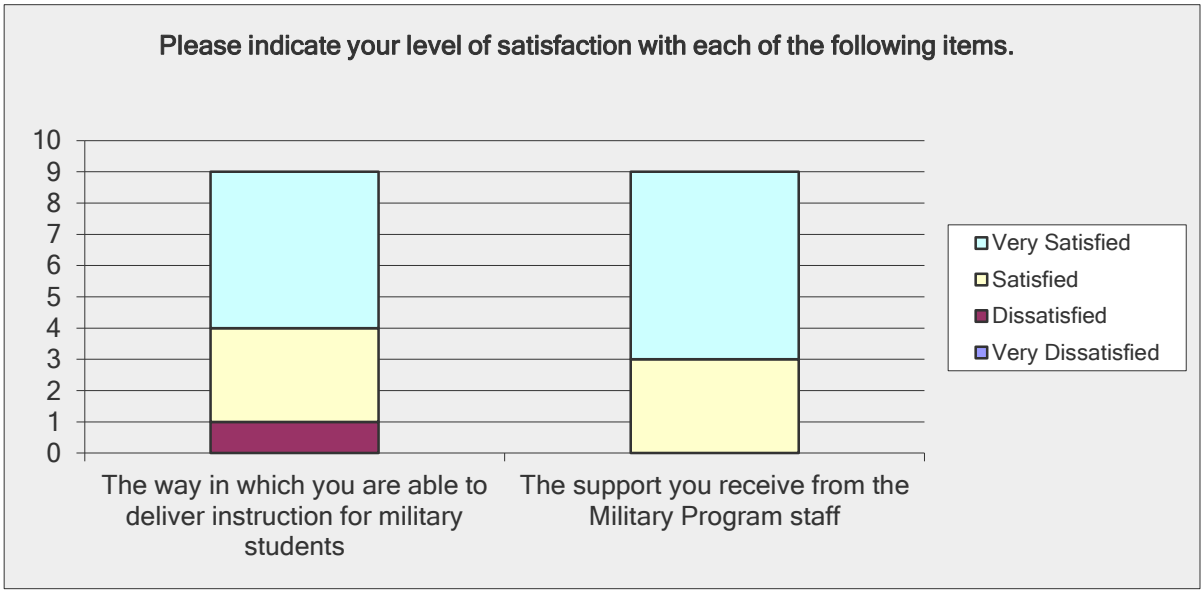
In addition, faculty satisfaction survey showed that faculty members were 79% very satisfied and 21% satisfied with “support for you, your classes, and program from your department chair”; 67% very satisfied and 33% satisfied with “support for your program and classes from Dean and support staff for your discipline”; 64% very satisfied and 36% satisfied with “quality of general instructional equipment and responsiveness of Coastline Distance Learning Department in meeting your needs as a DL instructor”; 36% very satisfied, 57% satisfied, and 7% dissatisfied with “extent to which Coastline’s Student Success Center meets the tutoring needs of math students.”



Military Program

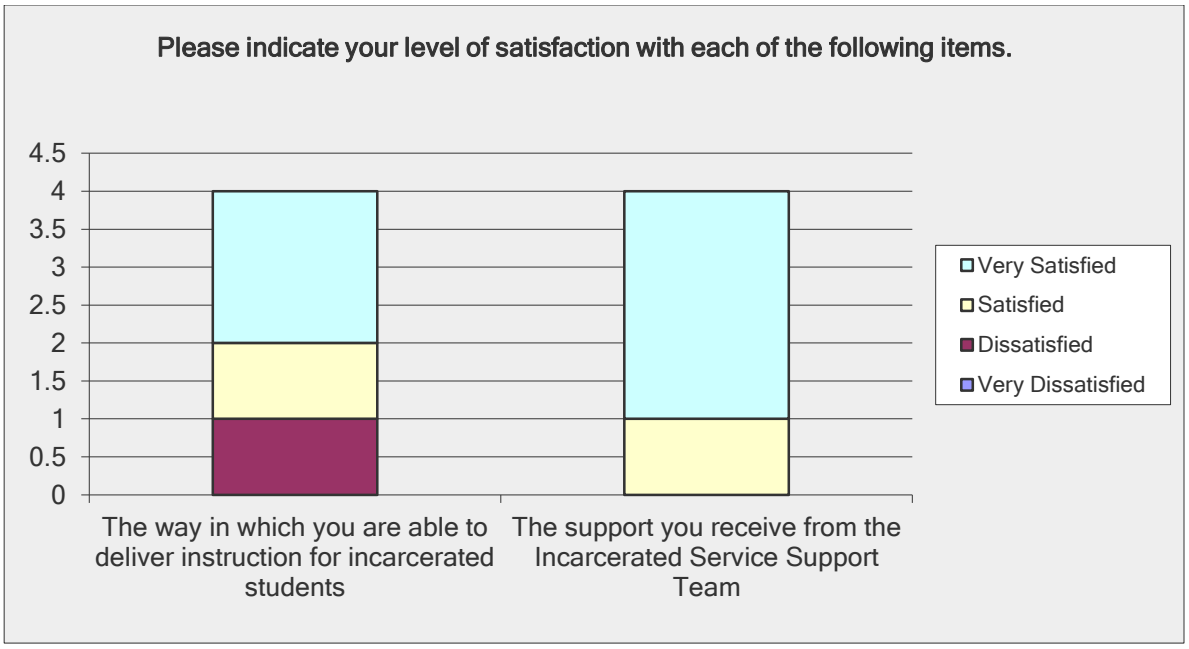
There were 47.1% of faculty members who had taught math classes at Military Program. Among them, 100% of faculty satisfied with "the way in which you are able to deliver instruction for military students" and "the support you receive from the Military Program staff."





Incarcerated Program

Only 25% of faculty in the department had taught at Incarcerated classes. Among them, 67% of faculty very satisfied and 33% dissatisfied with the way in which faculty were able to deliver instruction for incarcerated students. All the faculty members reported that they were very satisfied with the support received from the Incarcerated Service Support Team. See the chart on page 6.

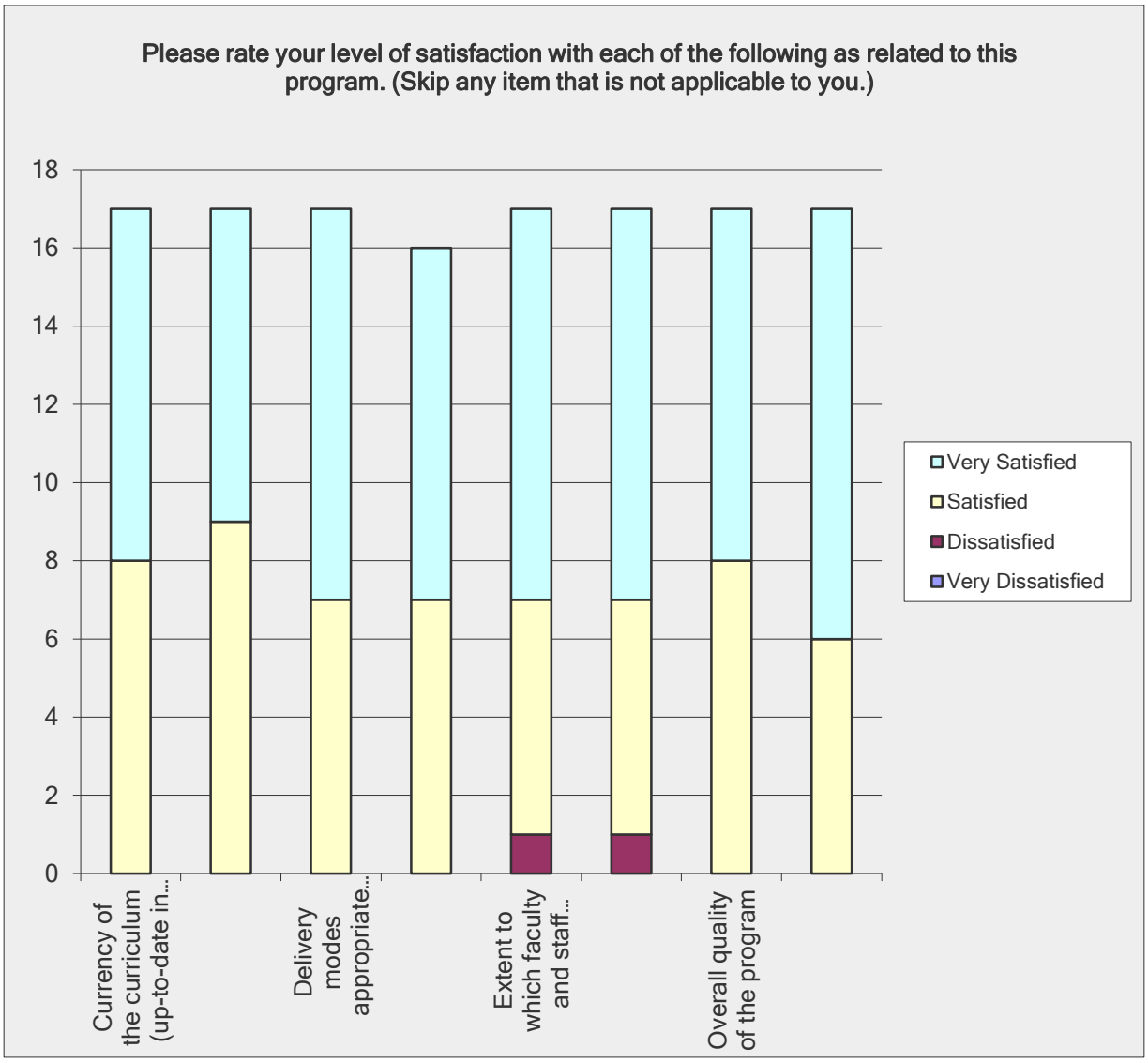


Scheduling Options

Faculty survey reported that the preference of the course delivery mode is summarized below. Among the options of 16-week classes, 12-week classes, 8-week classes, 4-week classes, intensive weekend classes, and intensive week-long classes that meet daily, teaching online ranked as the top one, approximately 77%.

At which location or in which delivery mode are you currently teaching classes in this program. (Mark all that apply, including Military Program classes.)

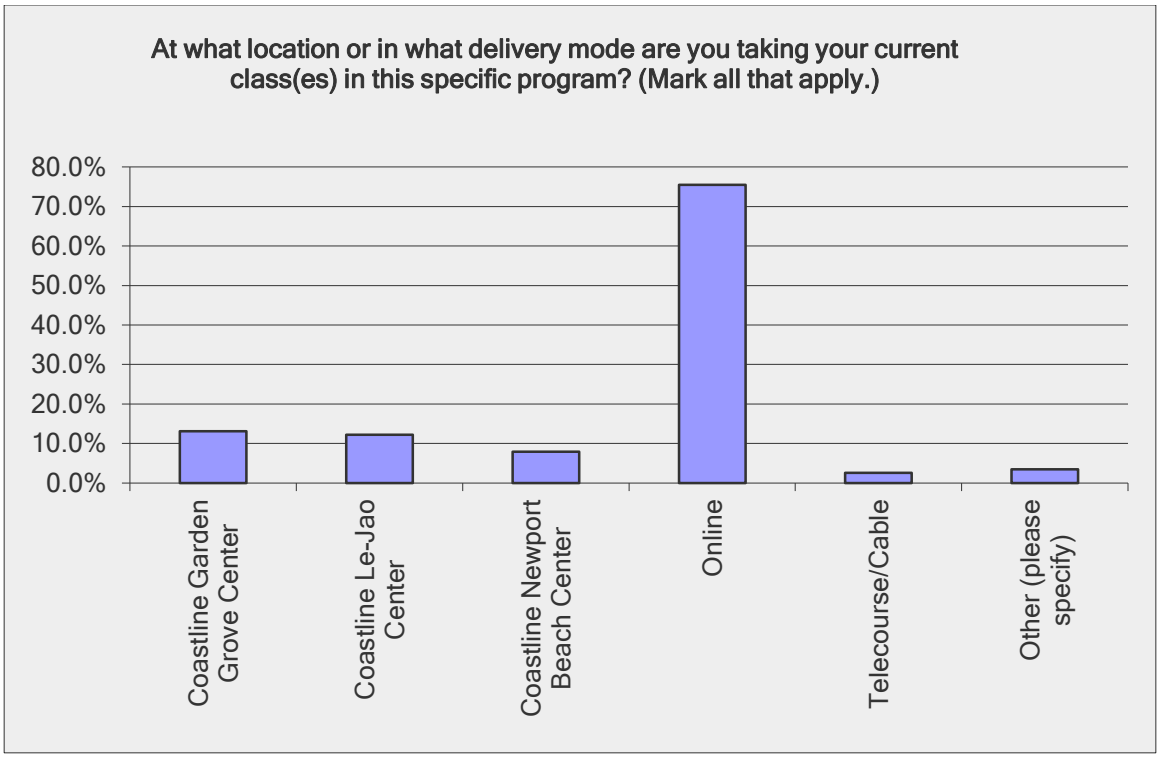
Answer Options	Response Percent	Response Count
Coastline Garden Grove Center	5.9%	1
Coastline Le-Jao Center	11.8%	2
Coastline Newport Beach Center	29.4%	5
Online	76.5%	13
Telecourse/Cable/Video	23.5%	4



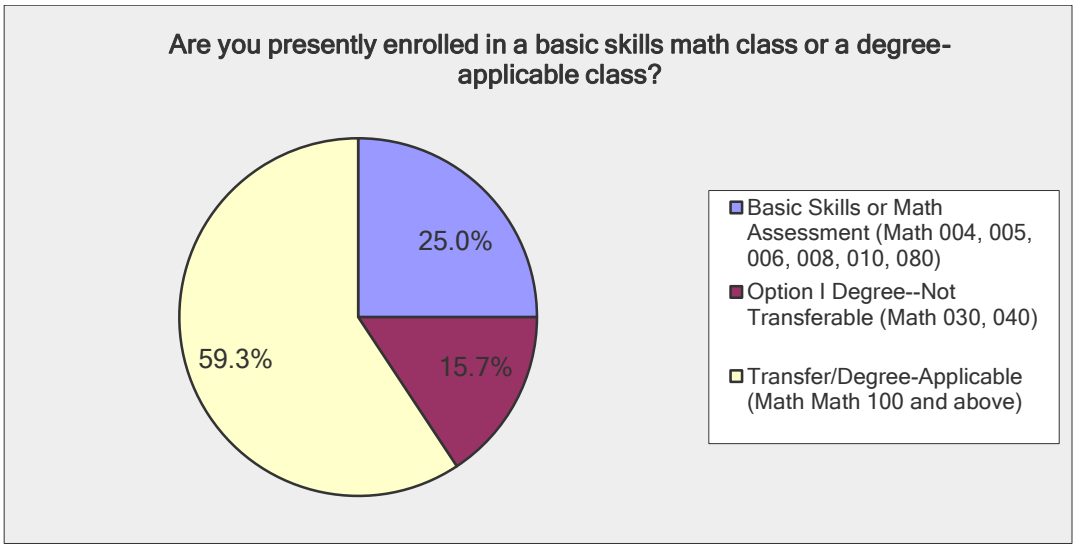
Student Satisfaction Survey

Responses from the summer 2014 Student Survey indicate that students were also generally satisfied with the quality of instruction and extend to which faculty and staff meet the needs of non-traditional students. Of the few who indicated dissatisfaction, the reason may relate more to delivery mode or scheduling rather than to the breadth of the curriculum, as comments noted that some classes are offered only online or only at one time of day.

According to the survey result, 75.25% of students had taken math classes online. Among them, majority were very satisfied by the quality of instruction in distance learning. Of the few who indicated dissatisfaction, the reason may relate more to delivery mode or found it difficult to rely primarily on a discussion board environment to get answers and would like more access to the instructor (emails).



Need

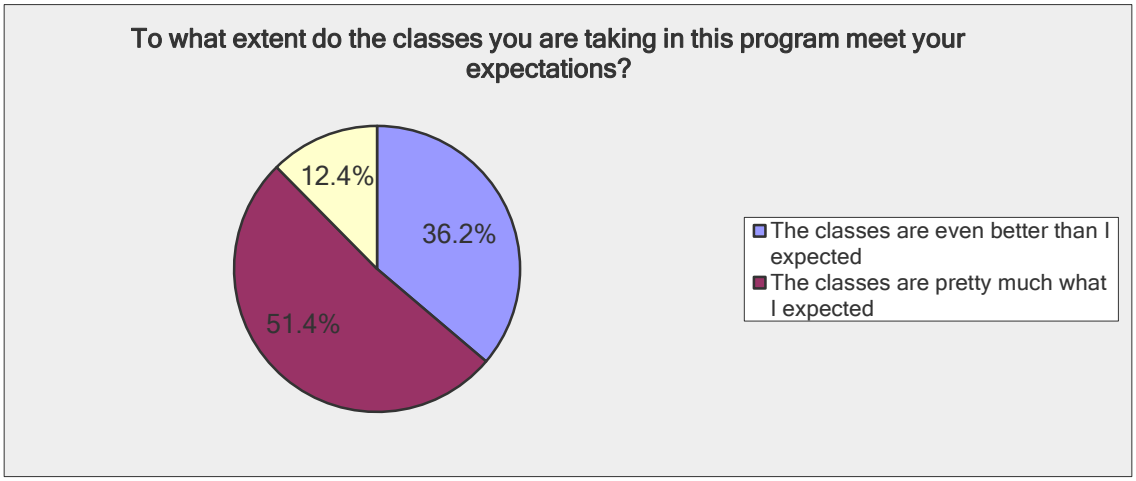


Based on responses to the summer 2014 Student Survey, 74.26% of students in the Math Program do not yet have a college degree. When asked students to rank the three primary reasons they are taking math classes, students gave the highest rankings to satisfy A.A. degree and transfer requirements. See the table on page 9.

Please rank up to three reasons why you are taking classes in this program at Coastline.

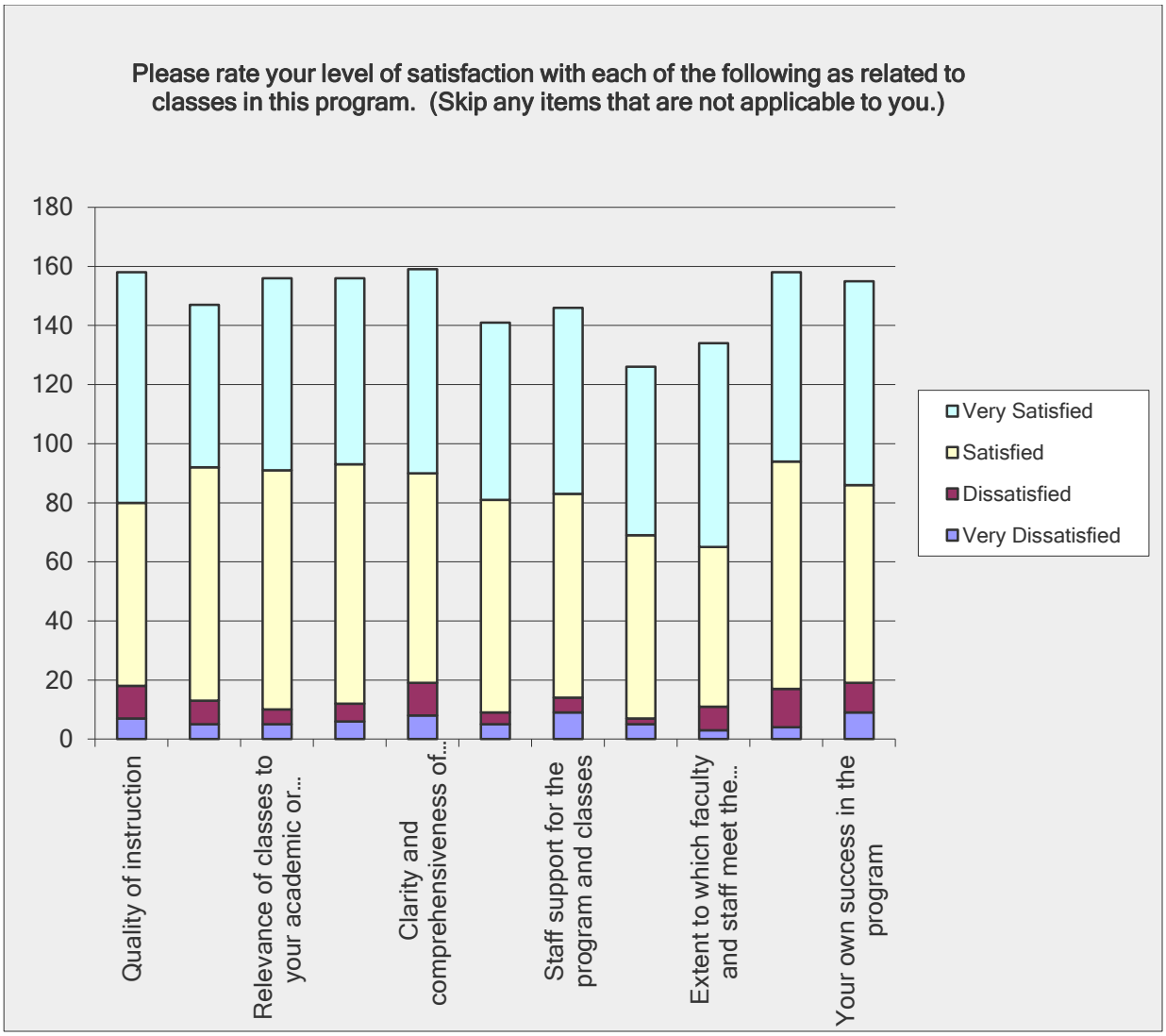
Answer Options	1st Reason	2nd Reason	3rd Reason	Response Count
To satisfy A.A. degree requirements	66	42	13	121
To satisfy transfer requirements	104	48	12	164
To earn a certificate	2	10	17	29
To prepare for a new job or improve job skills	12	18	27	57
For personal interest	3	12	24	39
Convenience	11	21	25	57
Other	9	2	15	26

Survey responses indicate that 51.4% of students found the Math classes are pretty much what they expected, and 36.2% found the classes are even better than they expected. Seethe chart below.



Here is the result that students indicate their status or interest of the following A.A. degree majors.

Answer Options	Presently working on	Interested but haven't started yet
Art	16	19
Business Administration	38	22
Economics	10	21
English	21	19
French	3	14
Gerontology	8	11
Health and Fitness	26	22
History	14	17
Human Services	16	22
Liberal Studies (for Teaching)	11	17
Mathematics	50	18
Psychology	23	25
Spanish	10	18
Sociology	17	23



The level of satisfaction from students as related to classes in this program is presented in the chart above. Quality of instruction, clarity and comprehensiveness of the instructions, and own success are rated as the top three of very satisfied.

Resources

Before spring 2013, the Newport Beach Center was built, math course offerings had centered at the Westminster Le-Jao Center. Full-time faculty and some part-time faculty have schedules their classes and office hours at Le-Jao Center. The full-time math faculty also schedule their office hours in Distance Learning at the College Center in Fountain Valley every Tuesday from 12:30 p.m. to 2:30 p.m. and by appointments. This helps faculty members communicate and collaborate which otherwise would be difficult at a distributed campus where faculty rarely see each other. In addition, starting spring 2013, the full-time math faculty also scheduled their classes and office hours at Newport Beach Center to accommodate students.

Equipment includes a teacher computer in every classroom with Internet access and speakers for sound, loaded with discipline-required software such as MyMathLab plugins and programs, TI-84 Plus graphing calculator Smart-View software, installed in all the learning Centers including Le-Jao, Garden Grove and Newport Beach and Distance Learning Office, and educational and social media programs such as YouTube. Several sets of graphing calculators had been purchased over the last six years, allowing students in the appropriate courses to check them out for free during the semester.

Each full-time math faculty has a Tablet PC. It is the ultimate tool for teaching and learning mathematics, especially online, because math is so difficult to type on a keyboard. More of these devices are needed for part-time faculty to check out!

Student Success Center Tutoring

Resources for students include tutoring, both online and in person. In year of 2010-2011, the online resource was from a commercial vendor, Smarthinking.com. It was 24/7 and paid for by Basic Skills funding. Research had shown that the majority of usage for Smarthinking.com was for basic skills, even in the higher-level courses. The other choice for online tutoring comes from the publishing company. They provide limited help free of charge (the first 30 minutes only) for students who purchase the access code for their class, which is required for all online courses. Although the availability is more limited it seems to be quite satisfactory with students. In 2013, Student Success Center has begun offering limited online tutoring service, two days a week, approximately three hours a day during math tutor on duty in the Student Success Center. When math tutors get busy with walk-in students, they have no time to assist students online at all. Besides, the math embedded online tutoring was available for some selected classes only. Actually the online embedded tutors rarely participated in the Discussions Boards to answer students' questions. Most of online classes have not offered by this assistance yet. Actually the online math tutors need to have training both in math computer software and use of equipments for the synchronous interaction with students. Online math tutoring has to be improved in order to serve our largest student population in math department. The task is crucial and imperative to the success of students.

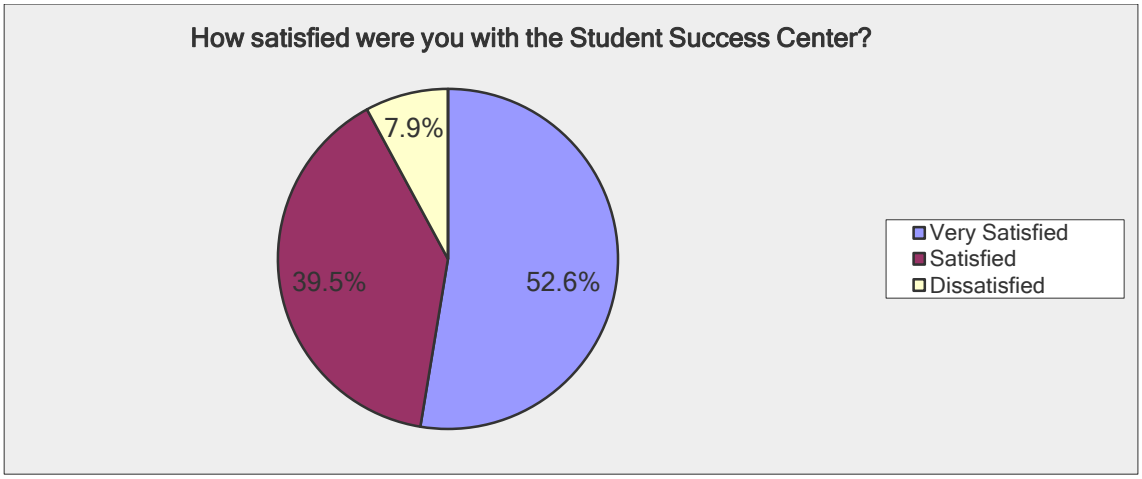
The in-person resource is provided by having a math tutor five days a week at the Student Success Centers in Le-Jao Center, Garden Grove Center, Newport Beach Center, and College Center. College Center offers tutoring from 10a.m.-4p.m., Monday, Wednesday and Friday. Garden Grove Center provides tutoring at 8a.m.-6p.m. Both Le-Jao Center and Newport Beach Center are open at 9a.m.-8p.m Monday through Friday. Although the in-person tutoring has been extended to different locations and hours, but majority of our Coastline students who are working adults, it's very hard to come to tutoring after work with heavy traffic and impossible to show up during the day time. Students have requested the weekend tutoring on Saturday or extend the tutoring hours to late evening.

In the survey result showed that 24.2% of students had used the Student Success Center, **only 1.3% of students have attended Webinar online tutoring**, 14.6% of students expressed that the hours and days of tutoring did not meet their needs, 38.2% of students did not need help from the Student Success Center, and 21.7% said they did not know about the Student Success Center. See the Table on page 12.

Answer Options	Response Percent	Response Count
I have used the Student Success Center.	24.2%	38
I have attended Webinar online tutoring	1.3%	2
I wanted to use the Student Success Center, but the hours and days did not meet my needs.	14.6%	23
I did not need help from the Student Success Center.	38.2%	60
I did not know about the Student Success Center.	21.7%	34

Level of satisfaction with the Student Success Center Tutoring Services

Among students who used the Student Success Center tutoring services, have expressed the level of satisfaction as the chart below. There are 52.6% are very satisfied, 39.5% satisfied, and 7.9% dissatisfied. See the chart below. However, student survey responses indicate it was hard to find a calculus tutor at the center



Student Satisfaction with Publisher's Tutoring

Based on the Student Survey, 44% used online tutoring offered by publisher, and 56% did not use the service. See the chart and table below. About 42% of users are very satisfied, 46% are satisfied, 9% dissatisfied, and 3 % very dissatisfied. See the tables below.

Answer Options	Response Percent	Response Count
Yes	43.9%	69
No: Didn't need it	42.0%	66
No: Didn't know about the service	14.0%	22

Satisfaction with Publisher's Online Tutoring		
Answer Options	**Response Percent**	**Response Count**
Very Satisfied	41.8%	28
Satisfied	46.3%	31
Dissatisfied	9.0%	6
Very Dissatisfied	3.0%	2

Suggestions from Students for Improving Student Success Center Math Tutoring

#	Responses
1	Tutor me what's gonna be on the exams so I may get a good grade.
2	I did have problems understanding some of the tutors. The language barrier made an already difficult subject for me a little bit more difficult. The tutors tried hard and were friendly
3	I love to see our teachers there because they know how to answer our questions.
4	Extend the hours
5	I think that online tutors should be assigned to higher level math classes for sure and perhaps lower level classes as well. It would be nice to have online tutors answer discussion questions.
6	Just a comment. I really enjoyed having a course embedded tutor. It was very helpful.

Partnerships

During the May to October time frame, 2014, the Math Department Chair, Lisa Lee has been representing Coastline College to participate in AB 86 Adult Education Consortium Planning project – Collaborating with local adult schools to better serve the educational needs of adults.

Professional Development

Almost all faculty members in the department take part in the All-College Meeting in fall and spring of each year and in discipline meetings. Faculty participation is also strong in professional conferences and Coastline's Summer Technology Institute. Full-time faculty, Fred Feldon and Lisa Lee have been the presenters in the Summer Technology Institute and national mathematics conferences. Lisa Lee was invited to present the "Online Success for Mathematics Students at the Community College Level "at the International Congress on Mathematical Education conference in 2012, Seoul, Korea and International Mathematics conference at Guangxi Normal University, Guilin, China. The tradition of mid-semester meetings has been doing well because the All-College Meetings does not offer the time needed. These meetings are held off-campus to promote collegiality and foster a friendly environment of collaboration.

The three full-time math faculty members have a tradition of lunch together every month. The updates of curriculum, instructional technologies, and any other issues related to Math Department have been discussed and solved during the lunch meetings.

Faculty in Mathematics Department have expressed an interest in additional technology training, including Tablet PCs and Camtasia, in addition, the training in SLOs at Seaport Course Portal. Part-time faculty Chau Tran received the award in 2010, Coastline College Teacher of Excellence, and was nominated as the 2011 Orange County Teacher of the Year. As shown below, faculty in the Math Department are also active on a wide variety of college committees and are engaged with other schools as instructors and/or advisors.

Being enthusiastic, focusing on personal needs and involving students in the process of their learning to assist them realize their dreams are my teaching passion. Making every effort to develop into

College Committees/Organizations	External Activities
Academic Senate	Advisory Committee in the Material Science Department at University of California, Irvine
Curriculum Committee	Instructor, California State University, Fullerton, and Anaheim Union High School District
Distance Learning Committee	Instruction, Long Beach City College, El Camino College, and East Los Angeles College
Faculty Rank Committee	AB 86 Adult Education Consortium Planning Coast Community College District, Huntington Beach Adult School, Garden grove Unified School District, Lincoln Education Center/Lincoln Continuation High School, and Newport Mesa Unified School District
Faculty Recognition Committee	
Leadership Task Force	
Marketing and Recruitment Committee	
International/Intercultural Committee	
Matriculation Committee	
Student Success Committee	
Career and Technical Education Committee	
Faculty Success Center	
Assessment Task Force Group	
Advisory Committee for Student Transfer	

Quantitative Elements

Course Data

2013-2014 Annual Instructional Planning Data for Mathematics

Year	2009-10	2010-11	2011-12	2012-13	2013-14
ENROLLED AT CENSUS	4,066	3,974	3,445	3,532	4,084
FTES:	521	528	448	440	522
FTEF30:	13.7	14.7	11.3	11.8	*14.8*
WSCH/FTEF:	626	587	649	612	579
Fill Rates:	87.2%	76.4%	73.6%	80.8%	76.8%
SUCCESS AND RETENTION DATA					
Success Rate:	54.4%	59.8%	61.6%	57.0%	54.6%
Retention Rate:	79.3%	80.5%	82.6%	77.5%	74.7%
FALL TO SPRING PERSISTENCE WITHIN SUBJECT					
Fall-to-Spring in Subject:	186	216	230	229	233
F-to-S Persistence:	21%	22%	24%	26%	29%
DEGREES AND CERTIFICATES					
Certificates:	0	0	0	0	0
Associate Degrees:	0	0	0	2	2

Data prepared by CCC Research & Planning Office, Summer 2014

The report above shows that Mathematics Department has consistently kept high enrollment, ranked as top 2 in the entire college, 2013-2014.

The Mathematics Department reported 521 FTES in 2009-2010. Due to the budget cut, FTES gradually decreased through 2013 reported 440. The 2013-2014 data report indicates the increase of 19% to 522 FTES. The Fill Rates increased from 73.6 % (2011-2012) to 76.8% (2013-2014). Although student success rates decreased from 57.0% to 54.6%, and retentions from 77.5% to 74.7%, however, the Fall/Spring Persistence kept 29%. Student survey showed that 63% were enrolled to satisfy transfer requirements, 55% were enrolled to satisfy A.A. degree requirements and only 18% to prepare for a new job or improve job skills.

The productivity measure identified as **FTEF30**, indicates the number of full-time faculty required to meet the program course load for the entire year at 30 Lecture Hour Equivalents. For 2013-2014, **14.8 full-time positions (FTEF30) are required** to teach the instruction load for the academic year, it is ranked as the **top one** needed in the whole college.

In order to meet our Coastline goal of Mission, Priority and Plan, increase the completion rate for degree and transfers, the Mathematics Department will require at least two more full-time faculty

members. In addition, to improve student success rate and retention rate, hiring additional full-time faculty members is necessary and urgent.

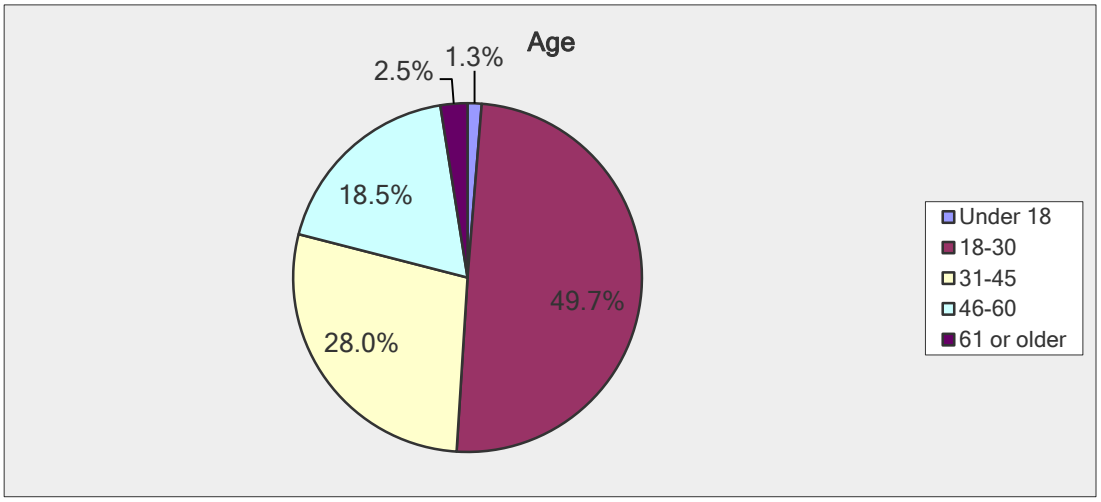
The Mathematics Department offers classes to satisfy the following academic requirements: (1) Associate in Arts. Degree and (2) Associate in Science in Mathematics for Transfer.

The Mathematics Department offers a variety of math courses from developmental to college level math to assist students succeed from various programs in the College: ECHS, STAR, STEM, EBUS, Military, and Incarcerated Program.

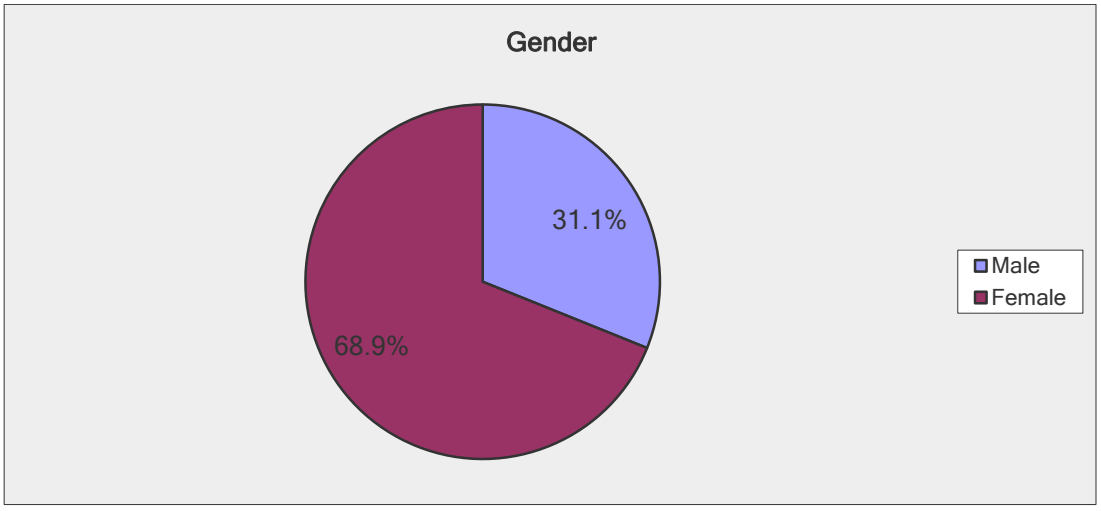
Student Elements

In Mathematics Department, analysis of the demographic data for those students surveyed in Summer 2014 shows that approximately 1.0 % of students are under the age of 18, 50% of students were between the ages of 18 and 30, and 49% of the students were between the ages of 31 and 61.

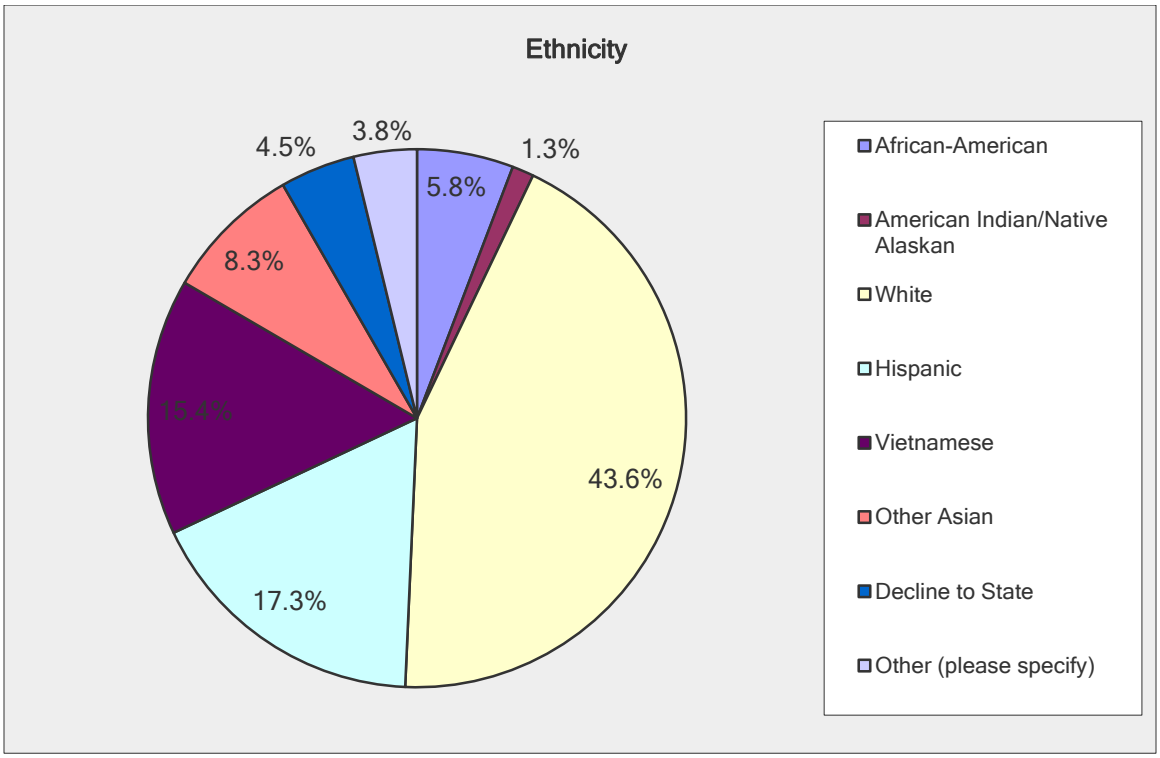
Answer Options	Response Percent	Response Count
Under 18	1.3%	2
18-30	49.7%	78
31-45	28.0%	44
46-60	18.5%	29
61 or older	2.5%	4



The majority of students taking FTES-generating math classes are women (68.9%). See the chart below.



Almost forty-four percent of the students in FTES-generating math classes define themselves as white. Fifteen percent described themselves as Vietnamese and 8.3% as other Asian. The ethnicity of 17.3% of math students was Hispanic and 5.8% was African-American. See the chart below.



The primary languages used by Students identified as the table below. Other languages are: Arabic, Korean, Russian, Albanian, Indonesian, and Swedish.

Answer Options	Response Percent	Response Count
English	85.0%	130
Spanish	3.3%	5
Vietnamese	7.2%	11
Other (please specify)	4.6%	7

From the survey responses, 4.5% of students identified themselves as high school students.

Are you in high school?		
Answer Options	**Response Percent**	**Response Count**
Yes	4.5%	7
No	95.5%	150

Almost 95% of the survey respondents indicated that they were either “Very Satisfied” or “Satisfied” with the extent to which faculty and staff meet the needs of culturally diverse students and only 5% said they were “Dissatisfied”, according to the chart below.

Based on responses to the summer 2014 Student Survey, 42.3% of students are working full-time, 11.5% are working 21-30 hours per week, 17.3% of students were working 20 hours or less per week, and 23.1% were not working outside the home, and 5.8% working as a volunteer. See the table below.

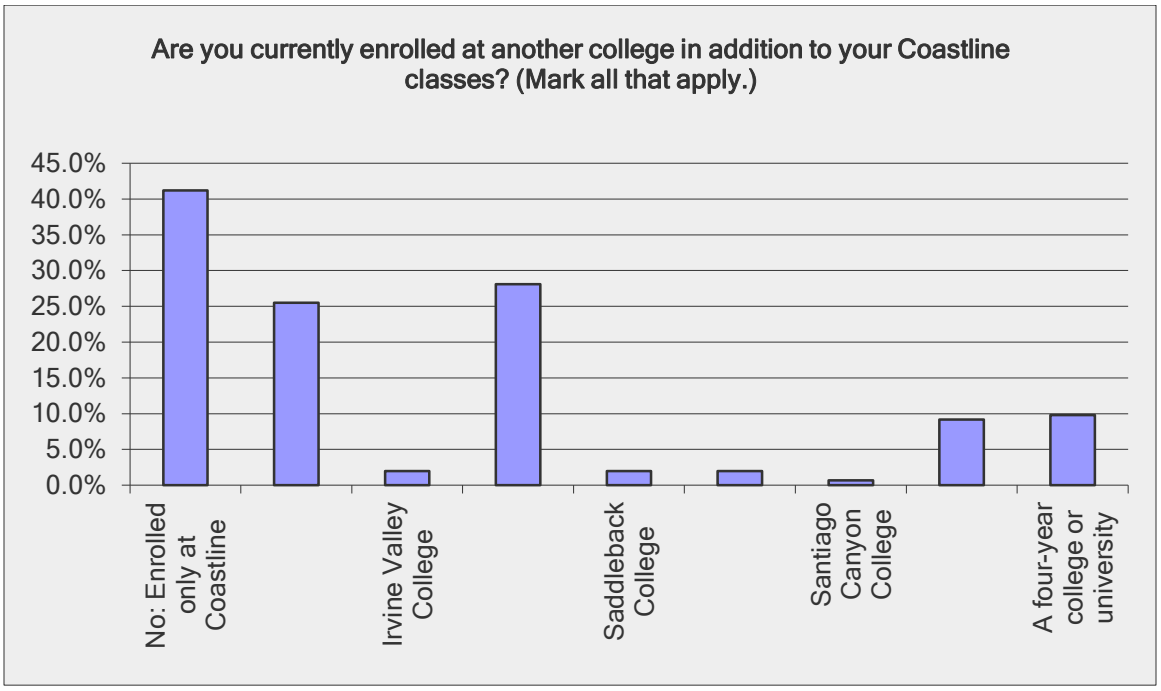
What is your current employment status?		
Answer Options	**Response Percent**	**Response Count**
Not working outside the home	23.1%	36
Working as a volunteer (non-paid position)	5.8%	9
Working 20 hours or less per week	17.3%	27
Working between 21-30 hours per week	11.5%	18
Working full-time	42.3%	66

The table below shows that **High school diploma (or GED)** was reported as the highest percent, 70.5%, for the response of the highest level of education from students, and 1.9% for both levels – Less than high school completion and Master’s degree.

What is your highest level of education?		
Answer Options	**Response Percent**	**Response Count**
Less than high school completion	1.9%	3
High school diploma (or GED)	70.5%	110
Associate in Arts degree	14.1%	22
Bachelor's degree	11.5%	18
Master's degree	1.9%	3
Doctorate	0.0%	0

The list of students enrolled at another college in addition to Coastline classes is listed below.

Are you currently enrolled at another college in addition to your Coastline classes? (Mark all that apply.)		
Answer Options	**Response Percent**	**Response Count**
No: Enrolled only at Coastline	41.2%	63
Golden West College	25.5%	39
Irvine Valley College	2.0%	3
Orange Coast College	28.1%	43
Saddleback College	2.0%	3
Santa Ana College	2.0%	3
Santiago Canyon College	0.7%	1
Other community college	9.2%	14
A four-year college or university	9.8%	15



Based on student survey responses, 93 percent of math students are satisfied with the extent to which faculty and staff meet the needs of non-traditional students (e.g., older adults, working adults, active duty military, etc.)

Cost Data

The Math Department has three full-time faculty members and, in a typical semester, employs 23 to 25 part-time faculty members. The Annual Instructional Planning document indicates the Full Time Equivalent (30) needed to teach the program's load for one year is **14.8 FTEF30,** Math Department 's **522 FTES** reported in 2013-2014. The chart of actual amounts of instructional salary costs data is inserted on page 19 (obtained from Business Office.)

Coastline Community College Math Department Instructional Salary Costs (includes salary & benefits)	
FY 2013-2014	
Cost Category	
Part-time Faculty	$598,606
Full-Time Faculty	$392,405
Totals	$991,011

Program Outcomes

Student Learning Outcomes

The Math Department has identified expected student learning outcomes. Course outlines have been updated to include robust course-level SLOs, and the department has identified expected program-level outcomes.

Based on responses from the 15 instructors who responded to the summer 2014 survey, all the faculty members are well-engaged in the identification and assessment of student learning outcomes.

As one might expect for math, faculty members indicate that the most-frequently used methods of assessment are objective tests (80%), participation (70%), and skill demonstration (50%). Other methods used by faculty include written assignments, grading rubrics, individual projects, and online discussion boards.

The department's four program-level student learning outcomes address quantitative methods, mathematical models, technology applications, and mathematical communication. The rubric for assessing these is shown on the next page.

In order to be considered fully achieved, the PSLO results had to be 80 or greater than 80%, while partially achieved fell between the range of 60% and 79%. The following summary presents the findings from the fall 2012, spring 2013, fall 2013 and spring 2014 PSLO assessments [APPENDIX A]

PSLO 1: Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.

Over the last 2 year (4 major terms) there has been a consistent rate of fully achieving PSLO1 between 50 and 60% in Math C115. The assessment found and upward trend in Math C160 in fully achieving PSLO 1 from 38% in fall 2012 to 52% in spring 2014. However, the data shows a low fail to achieve rate in Math C140 which may be related to the participation in the SLO assessment and PSLO mapping process.

PSLO 2: Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.

Over the last 2 year (4 major terms) there has been a consistent rate of fully achieving PSLO2 between 50 and 60% in Math C115. The assessment found the upward trend in Math C160 in fully achieving PSLO 2 from 22% in fall 2012 to 52% in fall 2013 and 32% in spring 2014. More sections were offered in spring 2014, which caused 20% lower achieve rate due to the lack of participation in the SLO assessment. The data shows a low fail to achieve rate in Math C140 which may be related to the participation in the SLO assessment and PSLO mapping process. Math C170 has 50% fully achieving rate In fall 2012, but the data shows it decreased to 15% in fall 2013 which may be related to the change of instructors. In spring 2013 it has increased to 29% fully achieved in Math C170 taught by the same instructor.

PSLO 3: Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.

Over the last 2 year (4 major terms) there has been a consistent rate of fully achieving PSLO3 between 30 and 50% in Math C010. The assessment found the upward trend in Math C160 in fully achieving PSLO 1 from 38% in fall 2012 to 52% in fall 2013. However, the data shows a low fail to achieve rate in Math C140 in fall 2012, which may be related to the participation in the SLO assessment and PSLO mapping process. However, it has achieving fully at 29% in fall 2013 and at 28% in spring 2014. The data shows that Math C180 and Math C280 have not participated in the assessment.

PSLO 4: Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.

Over the last 2 year (4 major terms) there has been a consistent rate of fully achieving PSLO4 between 54 and 63% in Math C115. The assessment found the upward trend in Math C160 in fully achieving PSLO 4 from 22% in fall 2012 to 55% in spring 2013 and 52% in fall 2013. More sections were offered in spring 2014, which became 32% due to the lack of participation in the SLO assessment. In fall 2012 the data shows a low fail to achieve rate in Math C140 which may be related to the participation in the SLO assessment and PSLO mapping process. From spring 2013 to spring 2014, Math C140 has shown a steady progress in assessment, from 15% increased to 28%. The data shows 50% fully achieving rate In Math C170, fall 2012, then it's decreased to 18% in spring 2013 which may be related to the change of instructors. In spring 2014 it has increased to 29% fully achieved in Math C170. Math C180 has a consistent rate of fully achieving PSLO4 between 54 and 66% from fall 2012 to fall 2013. Due to the new sections added to the spring 2014, the rate is decreased to 12% which may be caused by to the lack of

participation in the SLO assessment and PSLO mapping process. It has been a consistent rate of fully achieving PSLO4 between 69 and 100% in Math C280 from fall 2012 to spring 2013. However, the data shows a low fail to achieve rate in Math C280 from fall 2013 to spring 2014 which may be related to the participation in the SLO assessment and PSLO mapping process.

Rubric for Quantitative Reasoning

Characteristic/ Standard/ Primary Trait	Poor 1	Fair 2	Satisfactory 3	Excellent 4
Quantitative methods	Unable to arrive at correct solutions or to select appropriate quantitative methods even in familiar contexts	Generally arrives at correct solution but uses inappropriate methods and is unable to transfer problem-solving skills to unique situations	Selects and applies correct quantitative methods to find the correct solution to problems in familiar situations or contexts	Selects and applies correct quantitative methods (arithmetic, algebra, geometry, and/or statistics) to find the correct solution to a problem in familiar or unique situations or contexts
Mathematical models	Neither interprets nor creates mathematical models with any degree of reliability	Accurately interprets mathematical models but is unable to create original models	Accurately interprets mathematical models and can create basic models but does not always select the model best suited to represent the information	Accurately interprets and creates mathematical models such as formulas, graphs, tables, and schematics; includes predictions based on the model
Technology Applications	Unable to select and use the technology required to solve the problem at hand; demonstrates insufficient number sense or understanding of model limitations	Can select the appropriate technology but is not able to use the technology reliably and has difficulty with number sense and/or ability to recognize limitations of models	Selects and uses the technology for problems of moderate difficulty; demonstrates good number sense; has some difficulty recognizing limitations of models	Selects and uses appropriate technology (basic, scientific, and graphic calculators; computer software applications; etc.) to solve complex mathematical problems, demonstrating number sense and ability to recognize limitations of models
Mathematical communication	Presents a solution but is unable to explain the process used or verify the accuracy of the solution	Knows when an answer is correct but has difficulty explaining and/or justifying processes used to arrive at solutions; unable to represent solutions	Adequately explains thinking, mathematical processes, and justifies solutions but has difficulty representing findings in one or more method	Adequately explains thinking, mathematical processes, and justifies mathematical solutions; effectively and accurately summarizes findings symbolically, visually, numerically, and verbally

In spring 2014 faculty identified which SLO to evaluate. The first program-level SLO was chosen. Assessment questions were selected to measure the outcome. Faculty shared and discussed data during the Math Department meeting. The data was compiled and summarized by the end of the spring 2014 semester. How to improve teaching and learning in the department was discussed during the Mid-semester Math Department meeting.

Other Student Outcomes

Data from the State Chancellor's Office Data Mart, spring 2014 indicates that Coastline distance learning (Internet Based) retention and success rates are 3% and 7% respectively **higher** than the statewide average in general math. Coastline's success rate in Non-Distance instruction has 3% **higher** than the statewide average. Also the success rate of Video/Cable (one-way interaction) classes is slightly **higher** than the statewide average. See the following tables below.

Math Credit Course Retention/Success Rate Summary

Coastline College (Chancellor's Office Data Mart)					
	Degree Applicable				
	Enrollment Count	Retention Count	Success Count	Retention Rate	Success Rate
Internet Based	1,267	959	704	76%	56%
Non Distance	181	142	108	79%	60%
Video one-way	166	108	73	65%	44.0%

California Community College Statewide					
	Degree Applicable				
	Enrollment Count	Retention Count	Success Count	Retention Rate	Success Rate
Internet Based	17,653	12,925	8,655	73%	49%
Non Distance	296,147	237,414	170,187	80%	57%
Video one-way	425	299	186	70%	43.7%

Grade distributions data for spring 2014 (obtained from internal Banner reports) indicates that in average of 56% the students enrolled received a passing grade with 75.6% of retention rate. Based on the summer grade distribution report, an average of 63.5% of success rate and 82.1% of retention rate were reported. See the information below.

Grade Distribution Summer 2014
(Coastline Research Institute)

Success			**Retention**		
SuccN	SuccD	**Rate**	RetnN	RetnD	**Rate**
595	937	64%	769	937	82%

Information on Math Placement Test

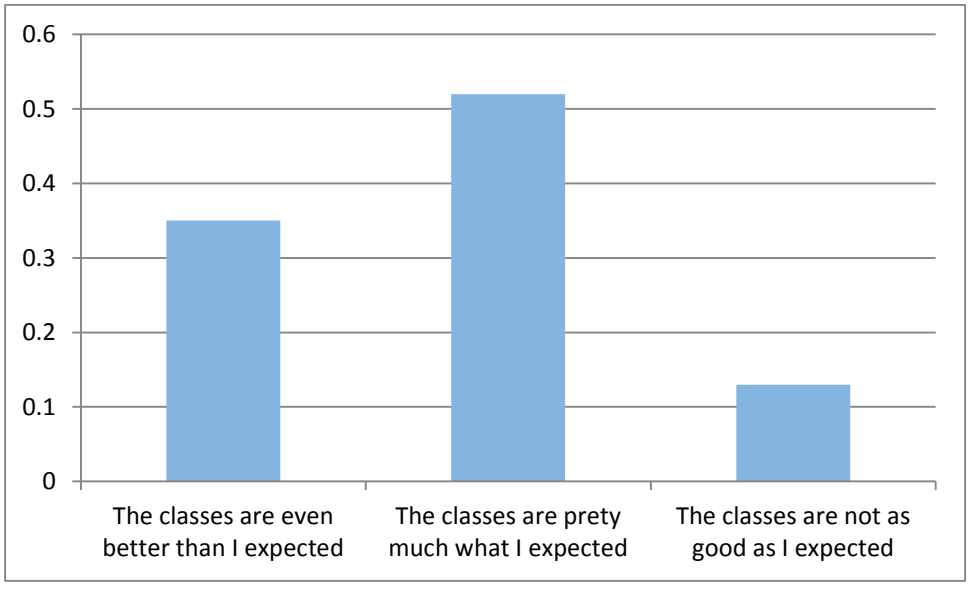
This is a 4 year snapshot of students that assessed at Coastline.

Math	Count	Frequency
4 Levels Below	530	3.0%
3 Levels Below	629	3.5%
2 Levels Below	2839	16.0%
1 Levels Below	2288	12.9%
College Level	11483	64.6%
Total	17769	

Student Satisfaction

The students respond the extent of expectations met to the math classes that they are taking in general, the result of survey shows that 35% of students are very satisfied and 52% are satisfied with the quality of instruction, the overall quality of the program, and their own success in the program.

Answers Choices	**Responses**
The classes are even better than I expected	35%
The classes are pretty much what I expected	52%
The classes are not as good as I expected	13%



I appreciated being able to take an online class and not have to attend. I have had a job change and was unable to finish my classes to graduate, being able to

Satisfaction from Distance Learning Students

Based on the survey result from students, here is the summary of satisfaction.

	Very satisfied	Satisfied
Quality of instruction	53.3%	42.9%
Amount of interaction with other students	44.7%	49.5%
Amount of interaction with the instructor	43.3%	48.1%
Speed of instructor responding questions	48.5%	46.6%
Helpfulness of feedback on quizzes, assignments	47.1%	43.3%
Reliability of the technology used to deliver the course	48.0%	47.1%
Adequacy of quizzes	52.9%	45.1%
Adequacy of scantron quizzes	42.3%	57.5%
Availability of technical support	41.8%	56.0%

In responses to open-ended survey questions, students offered most positive experience with math instructors:

- The teachers respond to student questions & emails almost immediately.
- I had a very good course last year with Villalobos and a good course from Cao. Cao responds immediately to emails and they both seem like they genuinely care for their students' success.
- Professor Lee is very clear and seems to genuinely care about the success of her students.
- I found Prof. Feldon is to be very helpful when I need help.
- Math C010 with Dr. Shi. Great teacher, always explained anything and everything thoroughly, and responded quickly to any questions
- Mr. Jihard A. Jaber is the best math teacher I have ever had. You can tell he loves teaching and he's great at it.
- Personally I was very happy with the online class, A+ for Professor Richard Shrining.
- I have taken a few online classes but Math 160 with Professor Lee is the best in terms of instructor involvement and online resources. No changes necessary.
- Please make every professor s copy Mr. Cao's way of teaching and helping students.
- The instructors are extremely helpful because they communicate in a prompt way.
- All my experiences had been very positive in this college. All my professors were very knowledgeable and helpful with the students. They seem to care about us to succeed in life.

Students also offered comments and suggestions related to needed program improvements:

- I think it is great as it is. The only thing would improve it for me would be to have some tutors that speak English as their first language.
- Keep the Cable cast option! Please remember, that not everyone is able to buy the very latest, fastest computer or device to use for school work and systems from school tech side need to be able to with older pcs too.

- I would love if they offered more classroom availability in their mathematics program. More of a variety of hours.
- More access to instructors for online classes. I think a live weekly class through Skype would be an awesome addition! It would really help us connect the dots for math!
- Later hours for working students as most full time employees finish work around 3-4 o'clock.
- More variety of times and dates for classes that have instructors.
- More hybrid or on-campus upper level math and science classes would be great.

Conclusions

Overall the Math Program seems to be responding to the needs of the students. A variety of classes are offered in a variety of formats and methods of instruction, of which online is the most popular and in demand. Enrollment is growing and the online course offerings are increasing every semester.

Math faculty members receive good ratings from students and the department chair has received good ratings from instructors. Leadership in the department is emerging in the district, that is, the two sister colleges seem to be more interested in what Coastline is doing. A weakness in the department might exist in student support, especially in terms of availability and quality of tutoring online; however most students do find a way to get the support they need, even if it turns out to be from their fellow students, which is encouraged by all faculty in the department.

Recommendations

Our vision is threefold: expand math curriculum, increase student success in math courses, and strengthen the Coastline math faculty. Curriculum expansion has begun with two accelerated courses, Math C044 and Math C045, which aim at speeding student progress to degree or transfer level. Other courses, now in development with similar goals, will create pathways to Statistics.

We will collaborate with the Science Department to develop a program to help students succeed in STEM majors. Still other curriculum development will yield a bridge program to increase student success in the STAR Program. Many STAR Students are entering or returning to college some years after high school. Although they are accepted into STAR, some students struggle in college-level math classes. A bridge program is a crucial element in preparing these students for the challenge of college-level math.

And as enrollment in math courses is increasing steadily, additional full-time faculty must be hired to help the Math Department accomplish its goals now and in the future.

In addition, the relationship of Math Department with the Student Success Center shall be improved. Math faculty should reach out to request an embedded tutor for their classes. Faculty should get into the habit of requesting a tutor at least a month before the semester starts. When the embedded relationship begins, faculty need to build a relationship with the tutor to develop a working style so that both teacher and tutor address student needs in an efficient manner. Faculty should promote the hours and contact information for the Student Success Centers and online tutoring (success@coastline.edu) in their course syllabi and through regular announcements in MyMathLab. For site-based math classes, would be helpful if the math department connected with their local Success Center to arrange to have a

tutor come talk to the class to tell students all the ways they can get help. The Student Success Center Coordinator should arrange opportunities for tutors and faculty to meet one another. To make these ideas work, SSC Coordinator and Math Department Chair would have to work together more closely.

Goals

Progress on Prior Goals

Self-Review Goals

1. The mid-semester department meeting has been holding since 2010, that augments the all-college meetings at the beginning of each semester.
2. Assess SLOs according to the college's requested schedule; discuss the results within the department and how they can be used to improve teaching and learning.
3. Incorporate a tradition of peer-to-peer sharing of course websites and instructor-created materials to create a climate of collaboration within the department.
4. Acquire hardware, either Tablet PCs or low-cost input devices, so that every full-time and every adjunct math faculty is able to check one out for the semester or access one in the Distance Learning Department
5. Join the college's virtual campus efforts by creating a meeting place for math students and faculty in Second Life; encourage faculty to receive training in and incorporate student activities in Second Life
6. Daniel Pittaway, coordinator for Student Success Center (SSC) has developed a system to evaluate the tutoring program – online survey. Under the new direction the tutoring service has expanded to four campuses and embedded tutoring has begun to assist online classes. However, monitoring and mentoring the embedded math tutors are still need to be developed and improved.
7. A full-time faculty Student Success Coordinator has been hired. His dynamic energy and ability has changed the SSC.
8. The yearly funding for each faculty to go math conferences has been increased to $1000 for each full-time faculty and $700 for each part-time instructor.

New Five-Year Goals

1. Hire two full-time math instructors due to the top ranking of FTEs, **14.8**, in the entire college and 147 LHEs taught by adjunct instructors.
2. Establish Math Academy or Bridge Program in summer and winter sessions to prepare students before classes start; and to increase the math success and retention rate, especially for STAR and STAR2 programs.
3. Create "Pathway" curriculum to help students succeed in college level math courses at a faster pace.

4. Acquire a mobile “smart cart” with laptops, printer and wifi at Newport Beach Center for math classrooms.
5. Develop a system to mentor and evaluate new math instructors, especially online.
6. Create a dedicate Math Lab for math students. In the student survey, one of the suggestions for the Student Success Center tutoring was to have a quiet place to study. Currently, the Center has English and other subjects’ tutoring in the same room.
7. Math tutors shall be recommended by math instructors or interviewed by a math instructor prior to hiring.
8. Develop and plan a system of an efficient online tutoring; improve online embedded tutoring services; provide a coordinator for this effort; implement a system that allows the Student Success Center to track individual student assistance and sends that information to each instructor as well as sending student success center use by math students to the department.
9. Discuss implementation of a STEM or STEAM Program and provide appropriate permanent office space for full-time faculty at the Newport Beach Center.
10. Provide more technology training programs for math faculty.
11. Participate with the college bookstore and the textbook publishing companies to help lower the cost of textbooks to students, and to more clearly outline all the options available to students for instructional materials; investigate free or low-cost online educational resources to help lower the cost of textbooks to students.
12. Implement the Statway program.
13. Procure software programs for math faculty and students including, but not limited to statistics.
14. Equip classrooms where math is taught with furniture and equipment that promote active leaning, such as mobile chairs with laptops and individual student whiteboards.
15. Modify the math placement system to include a student’s recent performance in math classes that do not transfer (such as high school students).

Program level SLOs statistics during CCC Fall 2012 for Mathematics

SLO Text	SLO Level	Course Number	Fully Achieved	Partially Achieved	Failed to Achieve
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C115	54.29 %	30.00 %	15.71 %
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C140	0.00 %	0.00 %	100.00 %
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C150	38.89 %	61.11 %	0.00 %
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C160	22.10 %	20.44 %	57.46 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C030	38.64 %	29.55 %	31.82 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C100	0.00 %	0.00 %	100.00 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C103	60.00 %	15.00 %	25.00 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C104	30.43 %	60.87 %	8.70 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C115	54.29 %	30.00 %	15.71 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C120	44.44 %	33.33 %	22.22 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C140	0.00 %	0.00 %	100.00 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C150	94.44 %	0.00 %	5.56 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C160	22.10 %	20.44 %	57.46 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C170	50.00 %	25.00 %	25.00 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C180	68.97 %	17.24 %	13.79 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C185	69.23 %	7.69 %	23.08 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C280	68.57 %	17.14 %	14.29 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C005	0.00 %	0.00 %	100.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C008	32.18 %	8.05 %	59.77 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C010	37.21 %	13.95 %	48.84 %

Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C030	38.64 %	29.55 %	31.82 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C100	0.00 %	0.00 %	100.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C103	60.00 %	15.00 %	25.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C104	21.74 %	69.57 %	8.70 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C115	54.29 %	30.00 %	15.71 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C120	51.11 %	33.33 %	15.56 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C140	0.00 %	0.00 %	100.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C150	44.44 %	27.78 %	27.78 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C160	22.10 %	20.44 %	57.46 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C170	50.00 %	25.00 %	25.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C180	68.97 %	17.24 %	13.79 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C185	69.23 %	7.69 %	23.08 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C280	68.57 %	17.14 %	14.29 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C115	54.29 %	30.00 %	15.71 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C120	65.56 %	18.89 %	15.56 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C140	0.00 %	0.00 %	100.00 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C150	61.11 %	33.33 %	5.56 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C160	22.10 %	20.44 %	57.46 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C170	50.00 %	25.00 %	25.00 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C180	68.97 %	17.24 %	13.79 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C185	69.23 %	7.69 %	23.08 %

Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C280	68.57 %	17.14 %	14.29 %

Program level SLOs statistics during CCC Spring 2013 for Mathematics

SLO Text	SLO Level	Course Number	Fully Achieved	Partially Achieved	Failed to Achieve
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C115	56.04 %	19.78 %	24.18 %
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C140	15.38 %	7.69 %	76.92 %
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C160	55.38 %	21.51 %	23.12 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C030	13.33 %	6.15 %	80.51 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C100	0.00 %	0.00 %	100.00 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C106	46.43 %	35.71 %	17.86 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C115	56.04 %	19.78 %	24.18 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C120	62.50 %	31.25 %	6.25 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C140	15.38 %	7.69 %	76.92 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C160	55.38 %	21.51 %	23.12 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C170	15.38 %	28.21 %	56.41 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C180	66.23 %	16.88 %	16.88 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C185	0.00 %	0.00 %	100.00 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C280	100.00 %	0.00 %	0.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C005	45.65 %	9.78 %	44.57 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C008	22.78 %	17.72 %	59.49 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C010	42.54 %	18.66 %	38.81 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C030	13.33 %	6.15 %	80.51 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C100	0.00 %	0.00 %	100.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C106	46.43 %	46.43 %	7.14 %

Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C115	56.04 %	19.78 %	24.18 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C120	62.50 %	31.25 %	6.25 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C140	15.38 %	7.69 %	76.92 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C160	55.38 %	21.51 %	23.12 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C170	15.38 %	28.21 %	56.41 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C180	66.23 %	16.88 %	16.88 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C185	0.00 %	0.00 %	100.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C280	100.00 %	0.00 %	0.00 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C115	56.04 %	19.78 %	24.18 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C120	62.50 %	31.25 %	6.25 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C140	15.38 %	7.69 %	76.92 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C160	55.38 %	21.51 %	23.12 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C170	17.95 %	25.64 %	56.41 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C180	66.23 %	16.88 %	16.88 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C185	0.00 %	0.00 %	100.00 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C280	100.00 %	0.00 %	0.00 %

Program level SLOs statistics during CCC Fall 2013 for Mathematics

SLO Text	SLO Level	Course Number	Fully Achieved	Partially Achieved	Failed to Achieve
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C115	59.04 %	19.28 %	21.69 %
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C140	28.92 %	4.82 %	66.27 %
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C160	52.15 %	22.49 %	25.36 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C030	8.98 %	11.38 %	79.64 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C103	81.82 %	0.00 %	18.18 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C106	38.89 %	44.44 %	16.67 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C115	59.04 %	19.28 %	21.69 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C120	51.22 %	24.39 %	24.39 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C140	28.92 %	4.82 %	66.27 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C160	52.15 %	22.49 %	25.36 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C170	14.04 %	21.05 %	64.91 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C180	54.10 %	39.34 %	6.56 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C185	51.85 %	29.63 %	18.52 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C280	0.00 %	0.00 %	100.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C005	64.81 %	16.67 %	18.52 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C008	26.87 %	16.42 %	56.72 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C010	53.42 %	22.60 %	23.97 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C030	8.98 %	11.38 %	79.64 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C103	81.82 %	0.00 %	18.18 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C106	55.56 %	22.22 %	22.22 %

Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C115	59.04 %	19.28 %	21.69 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C120	51.22 %	24.39 %	24.39 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C140	28.92 %	4.82 %	66.27 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C160	52.15 %	22.49 %	25.36 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C170	14.04 %	21.05 %	64.91 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C180	54.10 %	39.34 %	6.56 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C185	51.85 %	29.63 %	18.52 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C280	0.00 %	0.00 %	100.00 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C115	59.04 %	19.28 %	21.69 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C120	51.22 %	24.39 %	24.39 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C140	28.92 %	4.82 %	66.27 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C160	52.15 %	22.49 %	25.36 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C170	14.04 %	21.05 %	64.91 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C180	54.10 %	39.34 %	6.56 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C185	51.85 %	29.63 %	18.52 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C280	0.00 %	0.00 %	100.00 %

Program level SLOs statistics during CCC Intersession/Spring 2014 for Mathematics

SLO Text	SLO Level	Course Number	Fully Achieved	Partially Achieved	Failed to Achieve
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C115	63.29 %	18.99 %	17.72 %
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C140	28.07 %	21.93 %	50.00 %
Accurately interpret and create mathematical models such as formulas, graphs, tables, and schematics; include predictions based on the model.	P	MATH-C160	32.29 %	15.97 %	51.74 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C030	22.36 %	16.26 %	61.38 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C100	0.00 %	0.00 %	100.00 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C104	69.44 %	25.00 %	5.56 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C115	63.29 %	18.99 %	17.72 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C120	18.18 %	14.55 %	67.27 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C140	28.07 %	21.93 %	50.00 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C160	32.29 %	15.97 %	51.74 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C170	28.57 %	40.48 %	30.95 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C180	11.76 %	2.35 %	85.88 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C185	0.00 %	0.00 %	100.00 %
Adequately explain thinking and mathematical processes, and justify mathematical solutions effectively and accurately.	P	MATH-C280	0.00 %	0.00 %	100.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C005	15.71 %	17.14 %	67.14 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C008	61.73 %	18.52 %	19.75 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C010	30.34 %	23.45 %	46.21 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C030	23.17 %	16.67 %	60.16 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C100	0.00 %	0.00 %	100.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C104	63.89 %	27.78 %	8.33 %

Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C115	63.29 %	18.99 %	17.72 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C120	18.18 %	14.55 %	67.27 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C140	28.07 %	21.93 %	50.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C160	32.29 %	15.97 %	51.74 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C170	28.57 %	40.48 %	30.95 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C180	11.76 %	2.35 %	85.88 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C185	0.00 %	0.00 %	100.00 %
Select and apply correct quantitative methods to find the correct solution to a problem in familiar or unique situations or contexts.	P	MATH-C280	0.00 %	0.00 %	100.00 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C115	63.29 %	18.99 %	17.72 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C120	18.18 %	14.55 %	67.27 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C140	28.07 %	21.93 %	50.00 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C160	32.29 %	15.97 %	51.74 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C170	28.57 %	40.48 %	30.95 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C180	11.76 %	2.35 %	85.88 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C185	0.00 %	0.00 %	100.00 %
Select and use appropriate software and apply conceptual thinking skills to solve problems and complete specific technology-related projects.	P	MATH-C280	0.00 %	0.00 %	100.00 %

Q1 Department: Math

Answered: 1 Skipped: 0

Q2 Please indicate your level of agreement with the following statements.

Answered: 1 Skipped: 0

	Agree	Somewhat Agree	Disagree	N/A	Total
Department-related data was integrated and discussed within the document.	100.00% 1	0.00% 0	0.00% 0	0.00% 0	1
PSLO or AUO/SAO results were discussed and action plans developed.	100.00% 1	0.00% 0	0.00% 0	0.00% 0	1
Previous goals were addressed to 'close the loop' in planning.	100.00% 1	0.00% 0	0.00% 0	0.00% 0	1
The document provided a prioritization of recommendations.	100.00% 1	0.00% 0	0.00% 0	0.00% 0	1
There is substantial information/evidence to support the resource request(s).	100.00% 1	0.00% 0	0.00% 0	0.00% 0	1

Q3 Specify any major changes or resource requests identified in the AIP.

Answered: 1 Skipped: 0

#	Responses	Date
1	Full-time faculty member, computer updates	12/18/2014 12:35 PM

Q4 Provide feedback regarding the use of data to support resource request(s).

Answered: 1 Skipped: 0

#	Responses	Date
1	The data was discussed throughout the document and provided an in-direct link to the requests	12/18/2014 12:35 PM