Comprehensive Program Review Mathematics

LAKE TAHOE COMMUNITY COLLEGE

Comprehensive Program Review 2015

SUBMITTED BY:

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DATE:

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SECTION 1: EXECUTIVE SUMMARY

The Mathematics department at Lake Tahoe Community College is among the largest departments at the college (140 FTEs in 2014-2015, comprised of 52 transfer face-to-face, 10 transfer distance education, and 78 foundational skills FTES), providing instruction in pre-collegiate, developmental mathematics as well as transfer-level courses serving students across disciplines alongside science and mathematics majors. The department's curriculum is up-to-date and comprehensive. Classes in the math department are offered in a variety of modalities: fully online, hybrid, face-to-face, and most recently through one-to-one enhanced instruction in the Incarcerated Student Program. Instructors are student-focused, aware of student learning styles, and available to students outside of class.

As a result of the Comprehensive Program Review, the following goals and objectives were established for the next five years. These CPR goals are aligned with the college's goals and require a few associated budget requests.

1. Implement one or more of the effective evidence based practices to get students to progress through the math basic skills pipeline more successfully, and to increase completion rates.

2. Develop outreach efforts with the high school to enhance student readiness and success skills.

3. Offer alternative course pathways for basic skills classes and transfer level classes either through the Online Education Initiative and/or correspondence models.

4. Continued development of the various stages of assessing individual course SLOs and mapping those course-level SLOs to their program-level SLOs which are mapped to the department SLOs which are then mapped to the college's core competencies.

SECTION 2: INTRODUCTION AND PROGRAM HISTORY

The Math department is directly administered by the Dean of Instruction and offers both an AA degree and an AD-T (Associate Degree-Transfer). The program consists of five full-time faculty, two of whom have duties outside of the classroom including, departmental chair and basic skills responsibilities. Recent changes in the math department offerings have impacted the teaching load of full-time faculty. These changes include the development of the Incarcerated Student Program (ISP) and the Online Education Initiative.

Currently two full-time instructors have a teaching load in the ISP that takes them part time out of the traditional classroom. The increasing number of math classes and/or sections offered in ISP has impacted the availability of both full time and adjunct instructors to teach face-to-face classes. Additionally, one other full-time instructor is actively involved in the Online Education Initiative (OEI). With the advent and success of both of these programs, it is very likely that faculty will remain heavily involved in these programs. It is possible that in the coming years, additional responsibilities with these programs may require additional release or reassigned time, requiring additional instructors to ensure the needs of both face-to-face and distance students are met. In addition to these programs, full-time faculty in the department are also engaged in institutional efforts and activities such as Academic Senate, the Distance Education workgroup, the Technology workgroup, and the Basic Skills committee.

Several retirements within the Math department over the past few years has resulted in a significant turnover of part-time faculty. In light of the recently revised minimum qualification standards, stipulating Master's degree level achievement in Mathematics, finding qualified adjunct instructors is challenging and it has been difficult to replace these retirees. In spite of this, the department has diligently worked to recruit and retain quality adjunct faculty and have been successful in hiring. As of spring 2015, the department employed five part-time faculty members. These faculty members typically teach between 4 and 10 units per quarter.

Most math courses offered are pre-collegiate developmental math classes, with the majority of students being identified as non-science, technology, engineering and math (STEM) majors. These students typically take statistics as the transfer level math class, while the students enrolled in the college level algebra sequence and the calculus sequence are almost entirely STEM majors. Courses are scheduled in order to minimize conflict with courses offered in other departments such as basic skills English classes as well as the science classes.

In 2006, the Math department underwent a Comprehensive program review, and the

following recommendations were made. These recommendations are summarized and updated as follows:

1. **Offer an effective mathematics curriculum**

- Incorporate SLOs into the curriculum. This has been accomplished. Course SLOs have been developed for every math class and they are listed on all math syllabi.
- Eliminate Geometry and integrate into the Pre-Calculus sequence. This has not been accomplished but is no longer a goal of the department. The reason that it is no longer a goal is that the department collectively decided that the vast majority of the material covered in the geometry (proofs and reasoning as well as material covering properties of lines and triangles) are important and necessary for much of the pre-calculus and calculus sequence.
- Redesign Calculus for Life and Social Sciences. A new course, MAT118, has been created and replaces the old sequence. MAT 118, is a business calculus class and typically one section of this course is offered once a year. Life sciences students are taking the MAT 105 – MAT 107 sequence along with other science majors because it is required that they have more than one quarter of calculus.
- Infuse diversity into the curriculum.
- Increase mathematics requirement for an AA degree. This goal did not receive the support of the district's Academic Senate, retaining the requirement only of high-school-level mathematics for an Associate degree.

2. **Increase access to the mathematics program for all students**

- Offer more classes in a hybrid format. Hybrid offerings have remained limited to the MAT152A/B and MAT154A courses. The department has, however, begun to offer MAT201 (Statistics) online.
- Reach out to ethnically diverse students. The goal was to create a bridge class in mathematics for ESL students and to hire Spanish-speaking tutors. The math department has not engaged in specific activities to reach out to ethnically diverse students as of yet. It also does not have a bridge class for ESL students. However, this has been addressed by the ESL department. As of the last academic year, the ESL department has been offering an arithmetic class which is being taught by a bilingual instructor.
- The offering of "math anxious" sections throughout the academic year has been accomplished by creating and scheduling 5-unit versions of the developmental courses

MAT152AA, MAT152BB, and MAT154AA. These are scheduled and run as enrollment numbers permit.

- The department has created MAT158: Math Review, addressing the recommendation to assist students in being placed correctly into the developmental math sequence.
- The department offered a very successful "Math Boot Camp" over the summer 2015.

3. Promote and support quality instruction

- Supply funds for institutional memberships and staff development. Provide funds to hire readers (i.e. graders). With the adoption of technology resources for assigning and automatically grading math homework, in a majority of courses, this is for the most part no longer a need. However, the pre-collegiate geometry class does not have online homework as of yet. So, for this one class, we could still use funds to hire graders.
- Maintain more effective class sizes. Class enrollment limits have been implemented.

Data Trends

FTES and Enrollment

The FTES generated by the math department are summarized in three charts – one for FTEs generated by face-to-face transfer level classes, one for online classes, and a third for basic skills classes. Figure 1 illustrates FTES generated by transferrable-level face-to-face math classes (bars) as well as the duplicated headcount (lines) for the past six years. These transfer level courses are primarily sections of statistics, pre-calculus, and Calculus. The bars in the chart below show that for the past six years the number of FTEs typically is in the low 50s. The lines beside the bars indicate duplicated headcounts. The difference between FTEs and duplicated headcounts is that duplicated headcounts simply counts the number of heads in a classroom and the count does not take into consideration the type of enrollment (eg. credit, noncredit, pass/fail, ISP, etc) whereas FTEs is generated by a more complicated formula which considers additional factors such as contact hours as well as the type of enrollments which are the number of FTEs generated by students without counting repeated enrollments of the student in more than one class. Figure 1 shows that in spite of the overall college-wide decline in enrollments, the numbers of FTES generated by transfer level classes have remained relatively consistent.

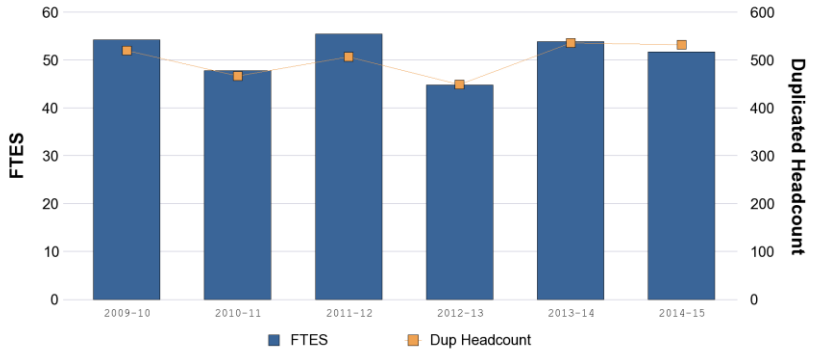

Figure 1. NUMBER OF FTES and DUPLICATED HEADCOUNT FOR TRANSFER LEVEL MATH CLASSES

In addition to traditional face-to-face courses, the math department offers online sections for the transfer level statistics class. Both the number of FTES and the duplicated headcount appear to cyclically rise and fall during three year periods as shown in Figure 2 below. This is due to a scheduling trend for online classes. When the online class was first offered as a pilot in 2009-10, there was only one section offered during that year. Then in the next two years, the number of sections offered per year increased due to the success of this online class. There was then a dip again, likely because of limited numbers of sections being offered due to the limited availability of instructors during that year. Then, more sections were able to be offered accounting again for the rise. It is not expected that this cyclic trend will continue; it is anticipated the number of FTEs generated by this online class will rise significantly because the statistics class offered at Lake Tahoe Community College will be offered throughout the state. It is likely that additional online classes will be offered, possibly also including basic skills math classes.

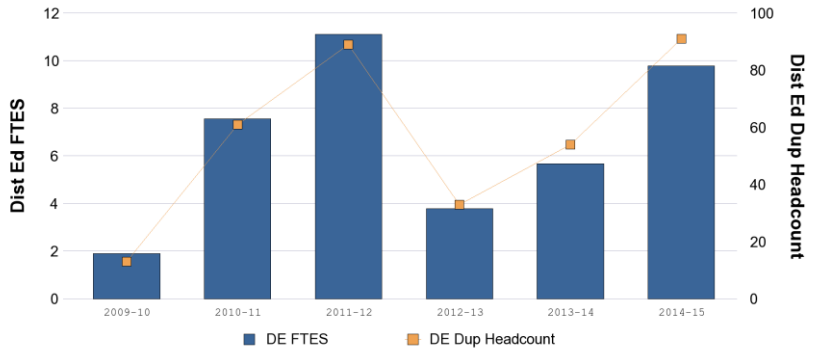

Figure 2. NUMBER OF FTES and DUPLICATED HEADCOUNT FOR ONLINE TRANSFER LEVEL MATH CLASSES

Figure 3 below shows that the number of FTEs and duplicated headcount for pre-transfer level math classes has decreased somewhat in recent years. This is consistent with the overall decrease in enrollments that the college has faced during the past few years. While the numbers of transfer FTEs have stayed relatively consistent during this time, it is not surprising the numbers FTEs generated by basic skills classes have declined. Many basic skills math students have families to support and so rely heavily on jobs and are likely more susceptible to changes in the local economy. This drop in enrollment somewhat mirrors the drop in college-wide enrollment.

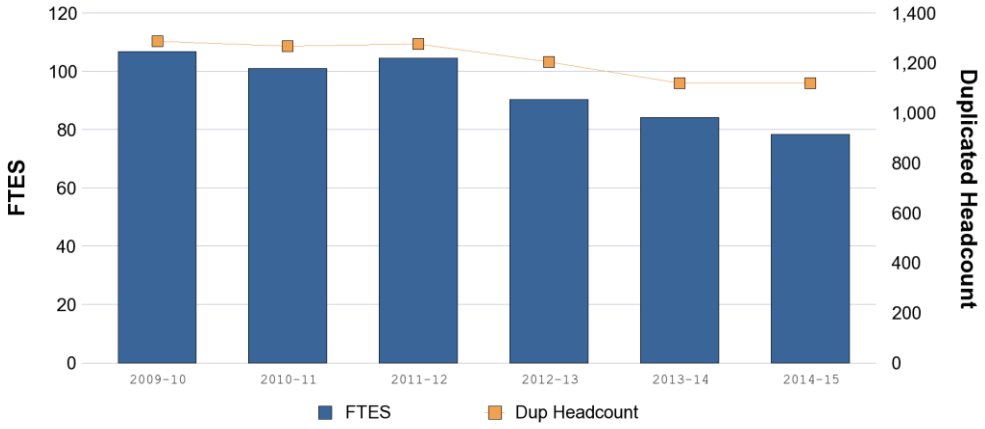

Figure 3. NUMBER OF FTEs and DUPLICATED HEADCOUNT FOR PRECOLLEGIATE MATH CLASSES

Completion Rates

Completion rates for transfer-level face to face courses vary randomly between 77% - 86% range during this six-year period (Figure 4). Completion rates for Distance Education courses are considerably lower ranging between 58% and 73%. This lower completion rate is not surprising as success in a math distance education class requires a greater level of self-motivation and independence on behalf of the student relative to a face-to-face class. Also, it should be noted that there is only one online math class offered, MAT 201. This is a statistics class which is intended for non STEM majors whose strength is not typically mathematics. However, with the implementation of the OEI, there may be opportunities for additional resources that could be advantageous for students.

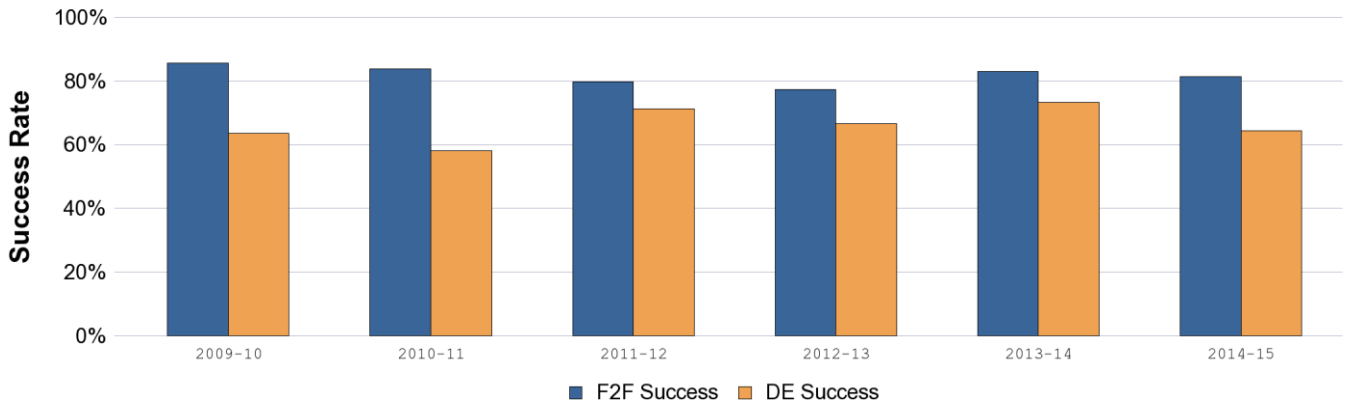

Figure 4. COMPLETION RATES FOR TRANSFER LEVEL CLASSES: Face to Face and Online

Completions rates for foundational courses (Figure 5) are typically around two-thirds for face-to-face foundational courses during the six-year period with the exception of during the academic year 2011-12 where the success rate was the highest rate of 73.9%. During the past two academic years of 2013-14, and 2014-15, the rates were around 65% which is two to three percentage points lower than the other three years. When compared to statewide data, LTCC is above the statewide average of 32.7% with a 43.6% success rate.

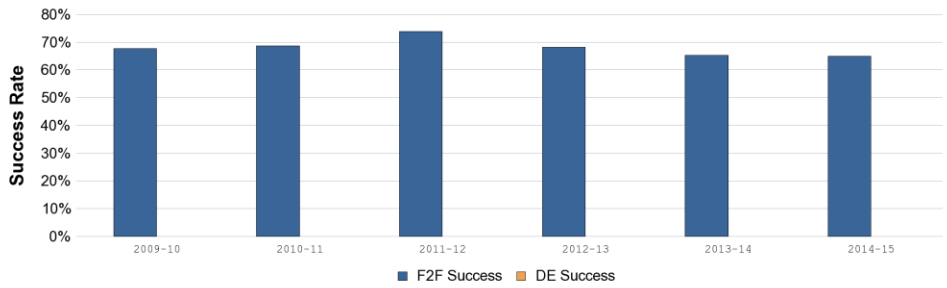

Figure 5. COMPLETION RATES FOR BASIC SKILLS CLASSES

Degrees Awarded

Although the math department is one of the biggest departments at the college, the number of AA degrees and AD-T degrees in mathematics is relatively small with numbers ranging between 2 and 8 per year (see Table 1 below). These numbers are very small relative to the size of the department. However, since the vast majority of students served by the math department are either basic skills students and or non-STEM majors these small numbers make sense. The table below shows the number of degrees awarded for the AA and A-DT in

mathematics. The number of degrees earned each year tends to be very low fluctuating randomly between one and six degrees.

	Award Type	Award Title	Awards Conferred
2009-10	AA Degree	Mathematics	2
2010-11	AA Degree	Mathematics	6
2011-12	AA Degree	Mathematics	2
2012-13	AA Degree	Mathematics	3
	AST Degree	Mathematics	3
2013-14	AA Degree	Mathematics	3
	AST Degree	Mathematics	1
	AST Degree	Mathematics	3
2014-15	AST Degree	Mathematics	6

Table 1. DEGREES AWARDED

Demographic Data

Table 2 illustrates the demographic data for students enrolled in transfer level math classes. It demonstrates that the overall percentages of male and female students in transfer-level mathematics are more or less even. In some years, the percentage of female students is slightly higher while in other years the percentage of male students is slightly higher. However, it is worth pointing out that for second-year transfer-level mathematics (i.e. second-year calculus, linear algebra and differential equations) women have been under-represented. The reason for this is unclear at the time and requires further investigation. It could be that the overall number of students in these second year transfer classes is very small relative to the total number of students enrolled in all of the transfer level classes.

Age distributions for transfer-level mathematics are steady over the last five academic years. During the past six years, between 65% and 72% of our students have been of age 24 or less; between 27% and 32% have been of age 25 to 49; and a very small percentage, between 1%

and 2%, and have been of age greater than 49.

The proportion of Hispanic students appears to have steadily increased from a low of 18% in the AY 2008-09 to around 28% in AY 2012-13. However, it is worth pointing out that in earlier years there is a significantly higher percentage of students who did not declare an ethnicity. For example, in the academic year 2008-2009, 23% of the students declared "unknown ethnicity." The percentage has steadily declined to 4.6% in the academic year 2014-2015. This statistic makes it difficult to draw conclusions about ethnicity enrollment trends in the department. In spite of this, when comparing 2011-12 with 2012-13 there is an increase in the proportion of Hispanic students, accompanied by a corresponding decrease in the proportion of non-Hispanic students.

	2009-10		2010-11		2011-12		2012-13		2013-14		2014-15	
	N	%	N	%	N	%	N	%	N	%	N	%
Male	159	47.5%	155	49.8%	163	45.9%	125	43.4%	186	55%	188	53.9%
Female	174	51.9%	154	49.5%	189	53.2%	163	56.6%	150	44.4%	161	46.1%
Unknown	2	0.6%	2	0.6%	3	0.8%	0	0.0%	2	0.6%	0	0.0%
Ethnicity Unknown	77	23.0%	43	13.8%	24	6.8%	23	8.0%	19	5.6%	16	4.6%
Hispanic	50	14.9%	57	18.3%	68	19.2%	72	25.0%	74	21.9%	88	25.2%
Non Hispanic	208	62.1%	211	67.8%	263	74.1%	193	67.0%	245	72.5%	245	70.2%
Age < 25	240	71.6%	219	70.4%	231	65.1%	191	66.3%	232	68.6%	241	69.1%
Age 25 - 49	90	26.9%	88	28.3%	114	32.1%	92	31.9%	104	30.8%	100	28.7%
Age 50 +	5	1.5%	4	1.3%	10	2.8%	5	1.7%	2	0.6%	8	2.3%

Table 2. DEMOGRAPHIC DATA FOR STUDENTS ENROLLED IN TRANSFER LEVEL MATH CLASSES

Productivity

As shown in the Table 3 below, productivity for the math department is 305.67. This compares to a college-wide average department productivity of 297.27.

Productivity is a measure of how effective the classroom coverage is forfaculty. It essentially measures how well the faculty are being utilized in teaching. This metric takes into consideration the number of contact hours, the enrollment numbers in the classes they teach,

as well as the faculty load of instructors. Three factors influence department productivity: contact hours of classes offered (WSCH-weekly student contact hours), enrollment in each class, and the full-time equivalent faculty (FTEF) load. Capacity is defined as the available enrollment in any given course based on constraining factors, such as enrollment limits based on curriculum, physical space limitations, etc.

- WSCH (Weekly Student Contact hours) is defined as the number of enrollments in a course multiplied by the number of weekly contact hours.
- FTEF (Full Time Equivalent Faculty) is defined as the assigned faculty load in a course divided by 48.

The productivity of the math department is consistent with the overall productivity of the college. These numbers (both departmentally and college-wide) are low in relationship to the state ideal of 528. These low numbers are likely attributed to both overall drops in enrollments that the college has experienced in recent years and to low course fill rates. However, it is interesting to note that the productivity of basic skills classes (271.2) is closer to what they would be if courses were filled at a rate of 75% (286.6) than is the productivity of transfer level classes (313.3) to their productivity at a 75% fill rate (437.7). Even at course fill rates of 75%, 100%, and 125%, the basic skills courses would likely be expected to be lower than their transfer level counterpart benchmarks due to lower enrollment caps in basic skills classes. Also, the course productivity table below for basic skills math shows that lower level basic skills classes (such as MAT187AB and MAT152A) also have lower class productivities than the higher level basic skills classes (MAT152B and MAT154A). Again, this is likely due to the low enrollment caps in addition to the low enrollments in these classes (especially MAT187). This trend is also illustrated in greater detail in Table 3 below, which shows the individual course level productivities for basic skills classes.

	Productivity	Productivity at 75% Capacity	Productivity at 100% Capacity	Productivity at 125% Capacity
Mathematics- Transfer 2014-15	313.43	437.70	583.61	729.51
Mathematics - Foundational Math 2014-15	271.20	286.58	382.11	477.64

Average Departmental Productivity* 2012-13	305.67	349.53	466.04	582.55
Overall College Productivity** 2012-13	287.85	322.45	429.93	537.41

Table 3. Productivity for Math

Note that the 2014-15 productivities are compared to average departmental productivity and overall college productivity from 2012-13. This means that different years are being used as benchmark. The Director of Institutional Research is investigating this. He has contacted the data analyst and will get back to Dr. Walker as soon as additional information is available.

Tables 4 and 5 detail the productivities for each of the transfer level math courses (face-to-face and online respectively). The pre-calculus sequence along with the first year calculus class has the higher productivity numbers. This is likely due to the fact that there is only one section of first year calculus offered each quarter, and the enrollments often are very close to matching their caps. The students are required to take this class and are advanced and have mature study skills and so nearly all who enroll persist in these classes. This pattern is counterbalanced by transfer level classes such as MAT 102, MAT 109, and MAT118. These are specialty classes that are not widely accepted to satisfy the transfer level math requirements for the California State University and the University of California system. Fewer universities accept or require these classes. This likely explains their low enrollments, which in turn affects their productivities. On the other hand, MAT 201, the transfer level math class for non STEM majors and the class that is accepted for transfer level math credit at the California State Universities as well as the University of California, has a reasonably high productivity of 301. Through personal communication with Larry Green, I understand that the Tuesday/Thursday sections of this class have much higher enrollments than the Monday/Wednesday/Friday sections – likely because students would rather go to this class fewer times per week. The second year calculus classes (MAT202, MAT 203, and MAT204) have lower productivities likely because there is only a subset of even the STEM majors that require these classes. However, it is essential to offer them because there are STEM majors that do require these classes.

	Sections Offered	Sections Ran	Avg Census Enrollment	Avg End of Term Enrollment	Withdraw* %	Retention* %	Success* %	Avg FTES	Total FTES	WSCH	FTEF	Course Productivity
MAT-102	2	1	10.0	10.0	0.0%	100.0%	100.0%	0.89	0.889	40.00	0.083	160.00
MAT-103A	3	3	24.0	19.3	19.4%	80.6%	79.3%	1.84	5.512	288.00	0.250	384.00
MAT-103B	3	3	17.3	15.0	13.5%	86.5%	80.0%	1.36	4.090	208.00	0.250	277.33
MAT-104	2	2	21.5	21.0	2.3%	97.7%	81.0%	1.73	3.467	172.00	0.167	344.00
MAT-105	1	1	35.0	34.0	2.9%	97.1%	85.3%	3.67	3.667	175.00	0.104	560.00
MAT-106	1	1	27.0	27.0	0.0%	100.0%	81.5%	3.00	3.000	135.00	0.104	432.00
MAT-107	1	1	21.0	20.0	4.8%	95.2%	95.0%	2.33	2.334	105.00	0.104	336.00
MAT-109	1	1	11.0	11.0	0.0%	100.0%	90.9%	1.22	1.222	55.00	0.104	176.00
MAT-118	1	1	14.0	14.0	0.0%	100.0%	78.6%	1.44	1.444	70.00	0.104	224.00
MAT-201	6	6	18.8	16.8	10.6%	89.4%	73.3%	1.91	11.47	565.00	0.625	301.34
MAT-202	1	1	16.0	16.0	0.0%	100.0%	87.5%	1.78	1.778	80.00	0.104	256.00
MAT-203	1	1	14.0	13.0	7.1%	92.9%	84.6%	1.56	1.556	70.00	0.104	224.00
MAT-204	1	1	13.0	13.0	0.0%	100.0%	100.0%	1.44	1.443	65.00	0.104	208.00
Total	**24**	**23**	**19.2**	**17.6**	**8.4%**	**91.6%**	**81.4%**	**1.76**	**40.4652**	**2,028.00**	**2.208**	

Table 4. 2014-15 COURSE STATISTICS FOR TRANSFER LEVEL MATH

	Sections Offered	Sections Ran	Avg Census Enrollment	Avg End of Term Enrollment	Withdraw* %	Retention* %	Success* %	Avg FTES	Total FTES	WSCH	FTEF	Course Productivity
MAT-201	4	4	22.8	17.5	23.1%	76.9%	64.3%	2.45	9.78	455.00	0.417	364.00
Total	**4**	**4**	**22.8**	**17.5**	**23.1%**	**76.9%**	**64.3%**	**2.45**	**9.78**	**455.00**	**0.417**	

Table 5: 2014-15 COURSE STATISTICS FOR DISTANCE EDUCATION (DE)

	Sections Offered	Sections Ran	Avg Census Enrollment	Avg End of Term Enrollment	Withdraw* %	Retention* %	Success* %	Avg FTES	Total FTES	WSCH	FTEF	Course Productivity
MAT-152A	14	13	15.2	14.1	7.6%	92.4%	55.2%	1.22	15.91	792.00	0.958	275.48
MAT-152AA	2	2	11.5	10.0	3.0%	87.0%	90.0%	1.17	2.33	115.00	0.208	184.00
MAT-152B	15	14	15.4	12.9	16.2%	83.8%	58.0%	1.23	17.27	864.00	1.042	276.48
MAT-152BB	2	2	12.5	10.5	16.0%	84.0%	76.2%	1.28	2.55	125.00	0.208	200.00
MAT-153	3	3	17.7	16.3	7.5%	92.5%	67.3%	1.48	4.44	212.00	0.250	282.67
MAT-154A	14	11	16.5	14.5	12.6%	87.4%	59.7%	1.33	14.58	728.00	0.792	306.53
MAT-154AA	2	2	19.5	17.0	12.8%	87.2%	79.4%	2.06	4.11	195.00	0.208	312.00
MAT-158	4	3	10.7	10.0	6.3%	93.8%	50.0%	0.41	1.22	55.10	0.125	146.94
MAT-187A	17	13	14.2	13.5	4.3%	95.7%	77.8%	0.70	9.14	456.04	0.694	218.92
MAT-187B	17	14	11.9	11.6	2.4%	97.6%	68.7%	0.49	6.85	319.50	0.555	191.75
Total	**90**	**77**	**4.5**	**13.2**	**9.2%**	**90.8%**	**64.9%**	**0.89**	**68.58**	**3,861.64**	**5.041**	

Table 6: 2015-15 COURSE STATISTICS FOR FOUNDATIONAL LEVEL MATH

Budget, Services and Facilities

The department's students are well supported in a variety of ways including, but not limited to, the Math Success Center, which provides a comfortable learning environment with tables, whiteboards, computers, copies of the textbooks used in each of the math classes, trained student-tutors, as well as counselors. Students may avail themselves of free tutoring in the Math Success Center, which is staffed by trained, advanced math student tutors. The Math Success Center resides within the larger Teaching and Learning Center. The number of hours that the Math Success Center is open is dependent on funding. However, because money was recently granted to the college through the SSSP and Equity initiatives, the hours of operation of the Math Success Center have been extended recently. Students taking all levels of math classes take advantage of the resources in the math success center. We are pleased with the high morale among math students, staff, and faculty pertaining to the teaching and learning of mathematics.

The Math program budget consists primarily of faculty salaries, adjunct salaries and associated benefits. Fluctuations in adjunct salaries pertain to the number of units scheduled in an academic year and customary increases as instructor's progress through the pay tiers.

Academic Year	Full-time Faculty Salaries	Adjunct Faculty Salaries	Benefits	Total Budget
2010-11	291,714	101,580	94,947	488,241
2011-12	248,466	127,275	110,679	486,420
2012-13	315,947	85,068	126,583	527,598
2013-14	311,843	83,456	127,545	522,844
2014-15	340,012	97,466	137,689	575,167

Table 5. Budget (does not include reassigned time, Instrucitonal aides, and/or stipends)

SECTION 3: PROGRAM MISSION AND SLOS

The Mathematics department program goal is to provide effective, rigorous instruction in mathematics. The department offers the courses students need for transfer, or to prepare for such courses. In addition the department offers curriculum for math and science majors through the sophomore sequence of second year calculus, linear algebra, and differential equations. The program strives to be sensitive to the needs of our student population with respect to scheduling. The department considers itself, and strives to be, student-centered.

The Student Learning Outcomes (SLOs) for the Mathematics major, as stated in the catalog, are as follows:

1. Engage in logical and critical thinking.

2. Read technical information

3. Demonstrate the solution to problems by translating written language into mathematical statements, interpreting information, sketching relevant diagrams, analyzing given information, formulating appropriate math statements, and checking and verifying results.

Student Learning Outcome data is hard to come by for the Math department as assessments have not always been completed in a timely or authentic manner. Additionally, there have been problems with the mapping of SLO's. Historically, all course level SLO's have been mapped to every Program level SLO. This error in mapping has resulted in skewed data that

doesn’t accurately reflect the assessment of student learning in individual courses The department has made it a priority to rectify this, and is committed to moving forward and assessing courses in a more timely and authentic manner.

SECTION 4: PROGRAM GOALS AND OBJECTIVES

The Math department is committed to the following goals and objectives over the next five years; these objectives are not listed in order of importance.

CPR Objective: 1 of 4		
Implement one or more of the effective evidence based practices to aloow students to progress through the math basic skills pipeline more successfully, and to increase completion rates.		
Representative Activities	**Responsible Individual(s) and/or Department(s)**	**Timeline for Completion**
a. Implement a more effective placement vehicle, possibly the statewide common assessment test along with additional metrics which are not exam based. Ideally, this assessment tool would provide practice problems and offer automatic assessment with feedback.	Math Department and Basic Skills Workgroup	Fall, 2018 (within a year from when the common assessment tool is rolled out)
b. Offer a math boot camp review of mathematics each summer. This math refresher will emphasize college-level course expectations and math-related study skills.	Math Department and Basic Skills Coordinator, Wynn Walker	Summer, 2016 Ongoing
c. Investigate options for offering compressed math classes and or an	Math Department and Basic Skills Workgroup	Ongoing

alternate sequence of math classes for basic skills math classes.		
d. Assess and evaluate success in relation to MAT 158	Math Department and Basic Skills Workgroup	Ongoing
Expected Outcomes	**Measures (if quantitative)**	**Baseline (If quantitative)**
The percent of students completing the math basic skills classes will increase from 65% to 75%, an increase of 10%	The completion rates for basic skills math classes measured during 2018-19	Completion rates for basic skills math classes are currently at 65%
Resource and Budget Implications	**Estimated Funding Required**	**Timeline**
Stipends for full time and adjunct instructors will be needed for this boot camp as well as money for food.	$5000 per summer	Annually, at the end of each summer
Strategic Issue	**Strategic Goal**	**Objective**
Strategic Issue # 2: Student, Learning, Success, and Achievement: To support students' learning, success, and the timely completion of their educational goals	Goal 5 – clear and effective pathways toward completion.	Objective 5.2: Facilitate students' early participation in and progress through foundational course sequences culminating in the successful completion of gateway English and math courses.

CPR Objective: 2 of 4		
Develop outreach efforts with high school along with student readiness and success skills.		
Representative Activities	**Responsible Individual(s) and/or Department(s)**	**Timeline for Completion**
a. Math instructors will reach out to under-represented and under-prepared students by visiting South Lake Tahoe High School (along with representatives from student services)	Student Services and basic skills math instructor(s)	Ongoing
b. Math instructors will attend student orientations for incoming students and reach out by introducing themselves along with their expectations and resources.	Student Services and basic skills math instructor(s)	Ongoing
Expected Outcomes	**Measures (if quantitative)**	**Baseline (If quantitative)**
The percentage of Hispanic students enrolled in transfer level math courses will increase to 30.27%, up 5%.	Student Services and basic skills math instructor(s)	The percentage of students enrolled in transfer level math classes will increase to 30.27%
Resource and Budget Implications	**Estimated Funding Required**	**Timeline**
N/A	N/A	2018

Strategic Issue	Strategic Goal	Objective
Student Access: to maximize college accessibility, particularly for those in the community who have been historically underserved and underrepresented in higher education	Goal 1: Early college awareness, preparation, and readiness	Objective 1.1: Strengthen the secondary-to-postsecondary educational pipeline

CPR Objective: 3 of 4		
Offer course pathways for basic skills classes and transfer level classes either through the Online Education Initiative and/or other alternatives, including one-on-one enhances instruction		
Representative Activities	**Responsible Individual(s) and/or Department(s)**	**Timeline for Completion**
a. Math instructors will continue to participate in the Incarcerated Student Program by visiting prisons and providing math tutoring sessions	Wynn Walker and Bruce Armbrust	Ongoing
b. Offer online math classes through the Online Education Initiative	Larry Green	Ongoing
c. Offer math classes through the Incarcerated Student Program	Math Department and Incarcerated Student Program	Ongoing
Expected Outcomes	**Measures (if quantitative)**	**Baseline (If quantitative)**
An increase in the number of classes offered through distance education and correspondence will increase by 15%	The number of classes offered through distance education and correspondence in 2019	The number of classes offered through distance education and correspondence in 2016 by 10%
Resource and Budget Implications	**Estimated Funding Required**	**Timeline**

Strategic Issue	Strategic Goal	Objective
Strategic Issue # 2: Student, Learning, Success, and Achievement: To support students' learning, success, and the timely completion of their educational goals	Goal 5: Clear and effective pathways toward completion	Objective 5.1: offer programs and courses at the right times, in the right sequences, and through the most effective modalities to facilitate students' timely completion of their educational and professional goals.

CPR Objective: 4 of 4		
Get SLO assessment processes up to date.		
Representative Activities	**Responsible Individual(s) and/or Department(s)**	**Timeline for Completion**
a. Remapping the course level SLOs to math department SLOs	Math Department	Fall, 2016
b. Linking course level SLOs to the institutional learning outcomes	Math Department	By the end of Fall 2016
c. Complete SLO assessments for each class at the time they are assigned and enter the data into TracDat	Math Department	Ongoing
Expected Outcomes	**Measures (if quantitative)**	**Baseline (If quantitative)**
For each math course, course level SLO's will be mapped to the program and institutional level SLO's. After that, math courses will be assessed in a timely and authentic manner	The number of math classes that have been remapped The number of courses that are assessed (i.e. for which TracDat data is available) as of February, 2017	The number of math classes that have been assessed (i.e. for which TracDat data is available) as of February, 2016
Resource and Budget Implications	**Estimated Funding Required**	**Timeline**

	Departmental workload units	Academic year 2016-2017
Strategic Issue	**Strategic Goal**	**Objective**
Strategic Issue # 2: Student, Learning, Success, and Achievement: To support students' learning, success, and the timely completion of their educational goals	Goal 3: Clear expectations and strong support	Objective 3.1: establish early, clear expectations for students' performance while providing the support necessary for their success

SECTION 5: RESOURCES NEEDED TO SUPPORT GOALS AND OBJECTIVES

The Math department is requesting funds to support the expense of the annual summer boot camp. The expense associated with this is approximately $5000.00, and includes stipends for instructors, meals, and incentives for participating students. The offering of this math boot camp is included in the CPR: Objective 1. This request ties into Strategic Issue #2; Student Learning, Success, and Achievement: To support student's learning, success, and the timely completion of their educational goals. Goal 5: Clear and Effective pathways toward completion, and Objective 5.2: Facilitate students' early participation in and progress through foundational course sequences culminating in the successful completion of gateway English and Math courses.

Additionally, the Math department is requesting grader for homework assignments. There are many assignments to grade and it is currently very difficult to grade all of the student work. Having a grader to look at the problems would enable instructors to provide extensive feedback on their homework which would support their learning in these courses. This request ties into Strategic Issue #2: Student Learning, Success, and Achievement: To support student's learning, success, and the timely completion of their educational goals. Goal 3: Clear expectations and strong support, and Objective 3:1: establish early, clear expectations for students' performance while providing the support necessary for their success.

SECTION 6: APPENDICES