

# Mathematics Program Review

## 2012-2013

### 1. Program/Department Description

#### **1A. Description**

The mathematics program provides strong emphasis on fundamental concepts and problem solving skills useful in a myriad of career paths. The study of both pure mathematics and applied mathematics provides skills useful in Actuarial Science, Astronomy, Biology, Chemistry, Computer Science, Digital Arts, Earth Sciences, Economics, Education, Engineering, Physical Sciences, Physics, Research, and the Social Sciences.

#### **Degrees/Certificates**

The Mathematics department offers courses are designed to articulate to UC and CSU for transfer students. The department also offers basic skills courses and courses that meet requirements for associate degrees and certificates.

#### **1B. 2012-2013 Estimated Costs (Certificate of Achievement ONLY)**

*Required for Gainful Employment regulations.*

	Cost		Cost		Cost		Cost
Enrollment Fees		Enrollment Fees					
Books/Supplies		Books/Supplies					
Total		Total		Total		Total	

#### **1C. Criteria Used for Admission**

Students must meet the prerequisites for each individual course.

#### **1D. College Vision**

Ventura College will be a model community college known for enhancing the lives and economic futures of its students and the community.

#### **1E. College Mission**

Ventura College, one of the oldest comprehensive community colleges in California, provides a positive and accessible learning environment that is responsive to the needs of a highly diverse student body through a varied selection of disciplines, learning approaches and teaching methods including traditional classroom instruction, distance education, experiential learning, and co-curricular activities. It offers courses in basic skills; programs for students seeking an associate degree, certificate or license for job placement and advancement; curricula for students planning to transfer; and training programs to meet worker and employee needs. It is a leader in providing instruction and support for students with disabilities. With its commitment

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to workforce development in support of the State and region's economic viability, Ventura College takes pride in creating transfer, career technical and continuing education opportunities that promote success, develop students to their full potential, create lifelong learners, enhance personal growth and life enrichment and foster positive values for successful living and membership in a multicultural society. The College is committed to continual assessment of learning outcomes in order to maintain high quality courses and programs. Originally landscaped to be an arboretum, the College has a beautiful, park-like campus that serves as a vital community resource.

### **1F. College Core Commitments**

Ventura College is dedicated to following a set of enduring Core Commitments that shall guide it through changing times and give rise to its Vision, Mission and Goals.

- Student Success
- Respect
- Integrity
- Quality
- Collegiality
- Access
- Innovation
- Diversity
- Service
- Collaboration
- Sustainability
- Continuous Improvement

### **1G. Program/Department Significant Events (Strengths and Successes)**

- In spring 2012, the Mathematics department continued the process necessary in developing a Transfer Model Curriculum degree in mathematics. This necessitated changing the course offerings. This degree initiative will go to the curriculum committee for review in FY 13.
- The department had a faculty member retire in spring 2012. The position has not been replaced. Four new part-time faculty members were hired for Fall 2012. A temporary contract position will be offered for spring 2013.
- The department continues to make use of new technology and software. We purchased licenses for Mathematica and MathType last year, and are making good use of all of the software and hardware we own.

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### K. Organizational Structure

President: Robin Calote

Executive Vice President: Ramiro Sanchez

Dean (Interim): Dan Kumpf

Department Chair: Alex Kolesnik

### Instructors and Staff

<b>Name</b>	<b>Kumpf, Dan</b>
Classification	Professor
Year Hired	2000
Years of Work-Related Experience	
Degrees/Credentials	A.A., B.S., M.S.

<b>Name</b>	<b>Adlman, Andrea</b>
Classification	Professor
Year Hired	1988
Years of Work-Related Experience	
Degrees/Credentials	B.S., M.A.

<b>Name</b>	<b>Anderson, Lisa Whelan</b>
Classification	Professor
Year Hired	1996
Years of Work-Related Experience	
Degrees/Credentials	B.S., M.S.

<b>Name</b>	<b>Beard, Michelle</b>
Classification	Associate Professor
Year Hired	2006
Years of Work-Related Experience	
Degrees/Credentials	B.S., M.S.

<b>Name</b>	<b>Beatty, Donna</b>
Classification	Professor
Year Hired	2004
Years of Work-Related Experience	
Degrees/Credentials	A.A., B.A., M.S.

<b>Name</b>	<b>Bowen, Michael S.</b>
Classification	Professor
Year Hired	1991
Years of Work-Related Experience	7.5 years industry experience
Degrees/Credentials	B.A., M.A.

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<b>Name</b>	<b>Bundy, Janine</b>
Classification	Assistant Professor
Year Hired	2011
Years of Work-Related Experience	
Degrees/Credentials	B.S., M.B.A., M.S.

<b>Name</b>	<b>Freixas, Marta M.</b>
Classification	Professor
Year Hired	1981
Years of Work-Related Experience	
Degrees/Credentials	B.A., M.S.

<b>Name</b>	<b>Kolesnik, Alexander</b>
Classification	Associate Professor
Year Hired	2007
Years of Work-Related Experience	
Degrees/Credentials	B.S., M.Ed.

<b>Name</b>	<b>Millea, Michelle</b>
Classification	Professor
Year Hired	1992
Years of Work-Related Experience	7 years
Degrees/Credentials	B.S., M.S.,

<b>Name</b>	<b>Matthews-Morales, Lydia</b>
Classification	Professor
Year Hired	1991
Years of Work-Related Experience	
Degrees/Credentials	A.S., B.S., M.A.

<b>Name</b>	<b>McCain, Michael T.</b>
Classification	Associate Professor
Year Hired	2005
Years of Work-Related Experience	
Degrees/Credentials	B.S., M.S.

<b>Name</b>	<b>Sha, Saliha</b>
Classification	Assistant Professor
Year Hired	2011
Years of Work-Related Experience	
Degrees/Credentials	B.S., M.S., M.S., M.A.

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<b>Name</b>	<b>Stowers, Dorothy</b>
Classification	Assistant Professor
Year Hired	2008
Years of Work-Related Experience	
Degrees/Credentials	B.A., M.A., Ph.D.

<b>Name</b>	<b>Thomassin, Steve</b>
Classification	Professor
Year Hired	1981
Years of Work-Related Experience	
Degrees/Credentials	B.A., M.S.

<b>Name</b>	<b>Yi, Peter</b>
Classification	Associate Professor
Year Hired	2006
Years of Work-Related Experience	
Degrees/Credentials	B.A., Ph.D.

# Mathematics Program Review

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### 2. Performance Expectations

#### 2A. Student Learning Outcomes

##### 2A1. **2012-2013** - Institutional Student Learning Outcomes

1. Communication - written, oral and visual
2. Reasoning - scientific and quantitative
3. Critical thinking and problem solving
4. Information literacy
5. Personal/community awareness and academic/career responsibilities

##### 2A2. **2012-2013** - Program Level Student Learning Outcomes

*For programs/departments offering degrees and/or certificates*

- 1.
- 2.

##### 2A3. **2012-2013** - Course Level Student Learning Outcomes

*Attached to program review (See appendices).*

#### 2B. **2012-2013** Student SUCCESS Outcomes

1. The department will increase its retention rate from the average of the **department's** prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census.
2. The department will increase its retention rate from the average of the **college's** prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census.
3. The department will increase the student success rates from the average of the **department's** prior three-year success rates. The student success rate is the percentage of students who receive a grade of C or better.
4. The department will increase the student success rates from the average of the **college's** prior three-year success rates. The student success rate is the percentage of students who receive a grade of C or better.

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### **2C. 2012-2013 Program OPERATING Outcomes**

1. The department will maintain WSCH/FTEF above the 525 goal set by the district.
2. Inventory of instructional equipment is functional, current, and otherwise adequate to maintain a quality-learning environment. Inventory of all equipment over \$200 will be maintained and a replacement schedule will be developed. Service contracts for equipment over \$5,000 will be budgeted if funds are available.

### **2D. Mapping of Student Learning Outcomes - Refer to TracDat**

## 3. Operating Information

### **3A. Productivity Terminology Table**

<b>Sections</b>	A credit or non-credit class. Does not include not-for-credit classes (community education).
<b>Census</b>	Number of students enrolled at census (typically the 4 <sup>th</sup> week of class for fall and spring).
<b>FTES</b>	Full Time Equivalent Students A student in the classroom 15 hours/week for 35 weeks (or two semesters) = 525 student contact hours. 525 student contact hours = 1 FTES. Example: 400 student contact hours = $400/525 = 0.762$ FTES. The State apportionment process and District allocation model both use FTES as the primary funding criterion.
<b>FTEF</b>	Full Time Equivalent Faculty A faculty member teaching 15 units for two semesters (30 units for the year) = 1 FTE. Example: a 6 unit assignment = $6/30 = 0.20$ FTEF (annual). The college also computes semester FTEF by changing the denominator to 15 units. However, in the program review data, all FTE is annual. FTEF includes both Full-Time Faculty and Part-Time Faculty. FTEF in this program review includes faculty assigned to teach extra large sections (XL Faculty). This deviates from the prior practice of not including these assignments as part of FTEF. However, it is necessary to account for these assignments to properly represent faculty productivity and associated costs.
<b>Cross Listed FTEF</b>	FTEF is assigned to all faculty teaching cross-listed sections. The FTEF assignment is proportional to the number of students enrolled at census. This deviates from the practice of assigning load only to the primary section. It is necessary to account for these cross-listed assignments to properly represent faculty productivity and associated costs.
<b>XL FTE</b>	Extra Large FTE: This is the calculated assignment for faculty assigned to extra large sections (greater than 60 census enrollments).The current practice is not to assign FTE. Example: if census>60, 50% of the section FTE assignment for each additional group of 25 (additional tiers).
<b>WSCH</b>	Weekly Student Contact Hours

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	The term “WSCH” is used as a total for weekly student contact hours AND as the ratio of the total WSCH divided by assigned FTEF. Example: 20 sections of 40 students at census enrolled for 3 hours per week taught by 4.00 FTEF faculty. $(20 \times 40 \times 3) = 2,400$ WSCH / 4.00 FTEF = 600 WSCH/FTEF.
<b>WSCH to FTES</b>	Using the example above: $2,400$ WSCH x 35 weeks = 84,000 student contact hours = $84,000 / 525 = 160$ FTES (see FTES definition). Simplified Formulas: $FTES = WSCH/15$ or $WSCH = FTES \times 15$
<b>District Goal</b>	Program WSCH ratio goal. WSCH/FTEF The District goal was set in 2006 to recognize the differences in program productivity.

### **3B: Student Success Terminology**

<b>Census</b>	Number of students enrolled at Census (typically the 4 <sup>th</sup> week of class for fall and spring). Census enrollment is used to compute WSCH and FTES for funding purposes.
<b>Retain</b>	Students completing the class with any grade other than W or DR divided by Census Example: 40 students enrolled, 5 students dropped prior to census, 35 students were enrolled at census, 25 students completed the class with a grade other than W or DR: Retention Rate = $25/35 = 71\%$
<b>Success</b>	Students completing the class with grades A, B, C, CR or P divided by Census Excludes students with grades D, F, or NC.

Program specific data was provided in Section 3 for all programs last year. This year, please refer to the data sources available at [http://www.venturacollege.edu/faculty\\_staff/academic\\_resources/program\\_review.shtml](http://www.venturacollege.edu/faculty_staff/academic_resources/program_review.shtml)

In addition, the 2011-2012 program review documents will provide examples of last year’s data and interpretations.

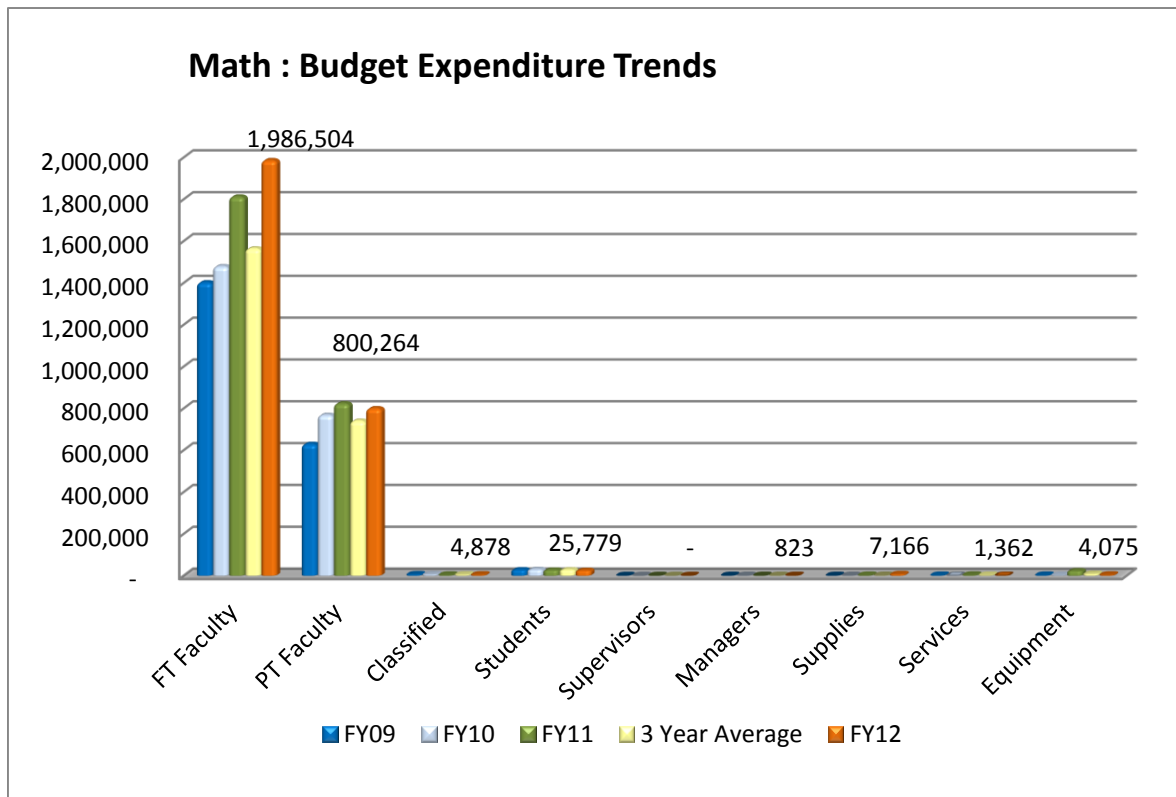
3C: **2012 - 2013** Please provide program interpretation for the following:

### **3C1: Interpretation of the Program Budget Information**

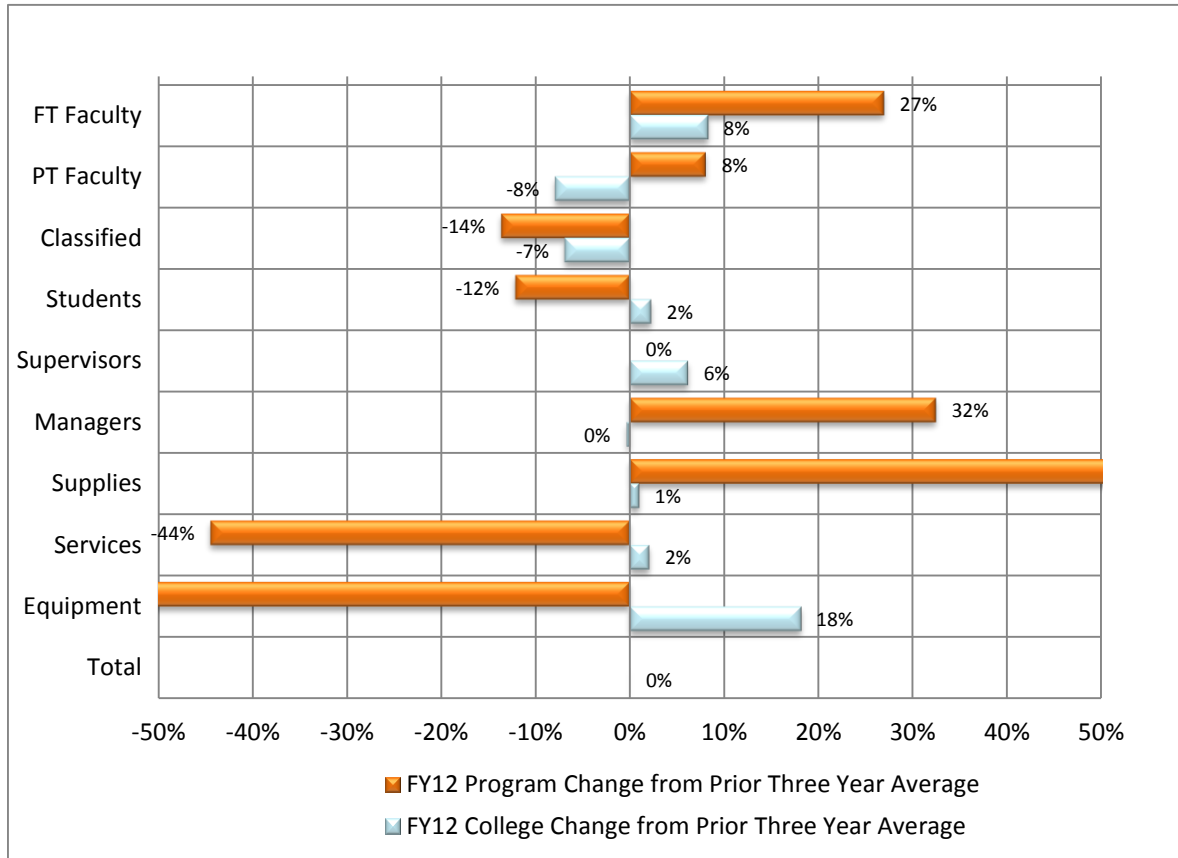


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Category	Title	FY09	FY10	FY11	3 Year Average	FY12	Program Change from Prior Three Year Average	College Change from Prior Three Year Average
1	FT Faculty	1,402,256	1,479,266	1,812,431	1,564,651	1,986,504	27%	8%
2	PT Faculty	629,817	768,501	823,512	740,610	800,264	8%	-8%
3	Classified	6,347	7,051	3,548	5,649	4,878	-14%	-7%
4	Students	29,352	30,975	27,721	29,349	25,779	-12%	2%
5	Supervisors	-	-	-	-	-	0%	6%
6	Managers	618	706	540	621	823	32%	0%
7	Supplies	548	896	2,136	1,193	7,166	501%	1%
8	Services	2,429	1,390	3,542	2,454	1,362	-44%	2%
9	Equipment	2,726	2,499	24,092	9,772	4,075	-58%	18%
	<b>Total</b>	<b>2,074,093</b>	<b>2,291,284</b>	<b>2,697,522</b>	<b>2,354,300</b>	<b>2,830,851</b>		<b>0%</b>



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The principal increase in budget was for full-time faculty. This amount had increased substantially in the budget for the prior year (2011-2012). This was partially due to the hiring of two new faculty members, although these were not growth positions, and the reassignment of a faculty member from Philosophy back to Mathematics. There was also a feeling last year that some of the previous budget for FT faculty was not correctly calculated due to a grant-funded position. The amount for the current year is nearly 10% higher than last year, despite the fact that we have an equal number of FT faculty members, and we did not receive any raise in salary for FT faculty. Step and level increases may account for some of this increase. The other categories did not change substantially in terms of real dollars. There were section cuts that resulted in lower expenditures for PT faculty.

### **3C2: Interpretation of the Program Inventory Information**

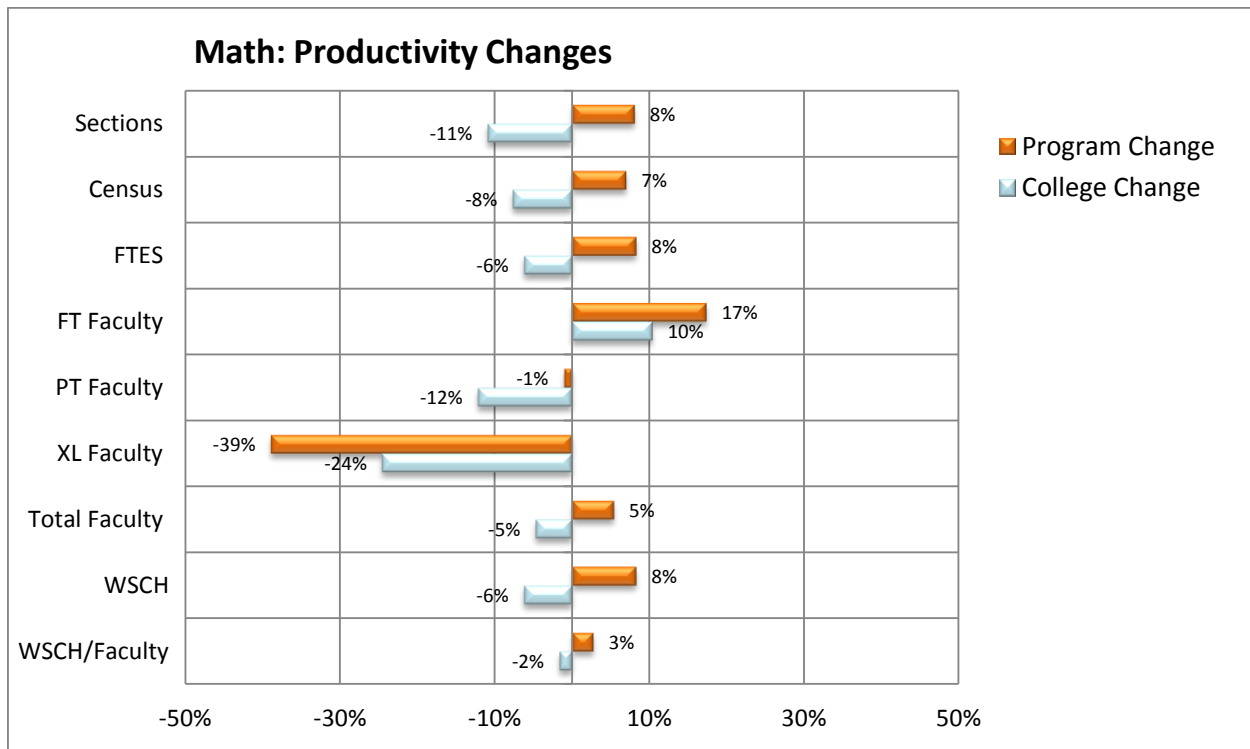
[http://www.venturacollege.edu/assets/pdf/program\\_review/2012-2013/3C2a%20Inventory%20by%20Program.pdf](http://www.venturacollege.edu/assets/pdf/program_review/2012-2013/3C2a%20Inventory%20by%20Program.pdf)

It looks like not all department items are listed on the inventory, and some of the information is incorrect. The inventory needs to be updated.

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### 3C3: Interpretation of the Program Productivity Information

Math: Productivity Changes							
Title	FY09	FY10	FY11	3 Year Average	FY12	Program Change	College Change
Sections	229	246	258	244	264	8%	-11%
Census	8,971	9,425	9,667	9,354	10,005	7%	-8%
FTES	1,230	1,270	1,316	1,272	1,377	8%	-6%
FT Faculty	13.35	13.00	15.33	14	16.30	17%	10%
PT Faculty	17.42	19.26	17.73	18	17.95	-1%	-12%
XL Faculty	1.83	0.78	0.68	1	0.67	-39%	-24%
Total Faculty	32.59	33.05	33.75	33	34.91	5%	-5%
WSCH	18,450	19,050	19,740	19,080	20,655	8%	-6%
WSCH/Faculty	566	576	585	576	592	3%	-2%



It looks like we have added a new FT faculty member from last year, but this did not actually take place. This accounts for the FT faculty budget increase described previously. This is probably due to labeling of grant-funded positions. We added sections, but served proportionally more students as a result. We were very efficient, with almost every section being full at census.

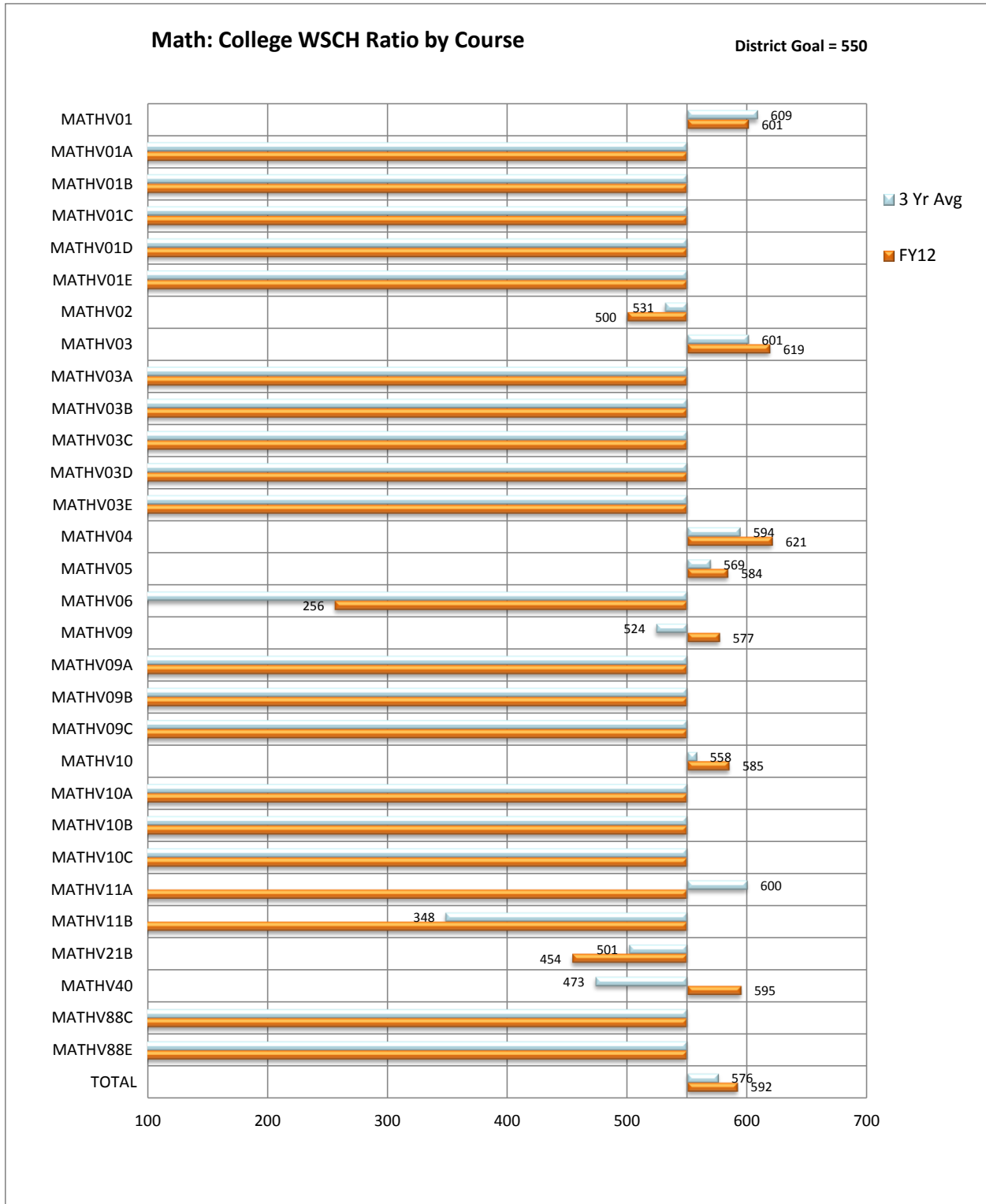
# Mathematics Program Review

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### 3C4: Interpretation of the Program Course Productivity Information

College WSCH Ratio: Weekly Student Contact Hours/(FT FTE + PT FTE + XL FTE)									
Course	Title	FY09	FY10	FY11	3 Yr Avg	FY12	Change	Dist Goal	% Goal
MATHV01	Elementary Algebra	617	601	608	609	601	(8)	550	109%
MATHV01A	Elementary Algebra: Module I	-	-	-	-	-	-	550	0%
MATHV01B	Elementary Algebra: Module II	-	-	-	-	-	-	550	0%
MATHV01C	Elementary Algebra: Module III	-	-	-	-	-	-	550	0%
MATHV01D	Elementary Algebra: Module IV	-	-	-	-	-	-	550	0%
MATHV01E	Elementary Algebra: Module V	-	-	-	-	-	-	550	0%
MATHV02	Geometry	525	570	499	531	500	(31)	550	91%
MATHV03	Intermediate Algebra	591	594	618	601	619	18	550	113%
MATHV03A	Intermed Algebra: Module I	-	-	-	-	-	-	550	0%
MATHV03B	Intermed Algebra: Module II	-	-	-	-	-	-	550	0%
MATHV03C	Intermed Algebra: Module III	-	-	-	-	-	-	550	0%
MATHV03D	Intermed Algebra: Module IV	-	-	-	-	-	-	550	0%
MATHV03E	Intermed Algebra: Module V	-	4	11	5	11	6	550	2%
MATHV04	College Algebra	578	605	599	594	621	27	550	113%
MATHV05	Plane Trigonometry	535	601	572	569	584	15	550	106%
MATHV06	Math Summer Bridge	-	-	-	-	256	256	550	47%
MATHV09	Beginning Mathematics	504	545	523	524	577	53	550	105%
MATHV09A	Beginning Math: Module I	-	-	-	-	-	-	550	0%
MATHV09B	Beginning Math: Module II	-	-	-	-	-	-	550	0%
MATHV09C	Beginning Math: Module III	-	-	-	-	-	-	550	0%
MATHV10	Prealgebra	542	568	564	558	585	27	550	106%
MATHV10A	Prealgebra: Module I	-	-	-	-	-	-	550	0%
MATHV10B	Prealgebra: Module II	-	-	-	-	-	-	550	0%
MATHV10C	Prealgebra: Module III	-	-	-	-	-	-	550	0%
MATHV11A	Elementary Algebra: 1st Half	600	566	634	600	-	(600)	550	0%
MATHV11B	Elementary Algebra: 2nd Half	411	274	360	348	-	(348)	550	0%
MATHV21B	Calculus/Analytic Geometry II	478	497	529	501	454	(47)	550	83%
MATHV40	Math Topics:College Students	390	485	545	473	595	122	550	108%
MATHV88C	Elementary Algebra: Module III	-	-	-	-	-	-	550	0%
MATHV88E	Elementary Algebra: Module V	-	-	-	-	-	-	550	0%
<b>TOTAL</b>	<b>Annual College WSCH Ratio</b>	566	577	585	576	592	16	550	108%

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The Mathematics department is outstanding in terms of its efficiency. Almost every course exceeds the district goal. The few exceptions are courses that have been very rewarding for students, such as our self-paced courses. Those courses are no longer offered, so our department-wide efficiency will improve even more by next year.

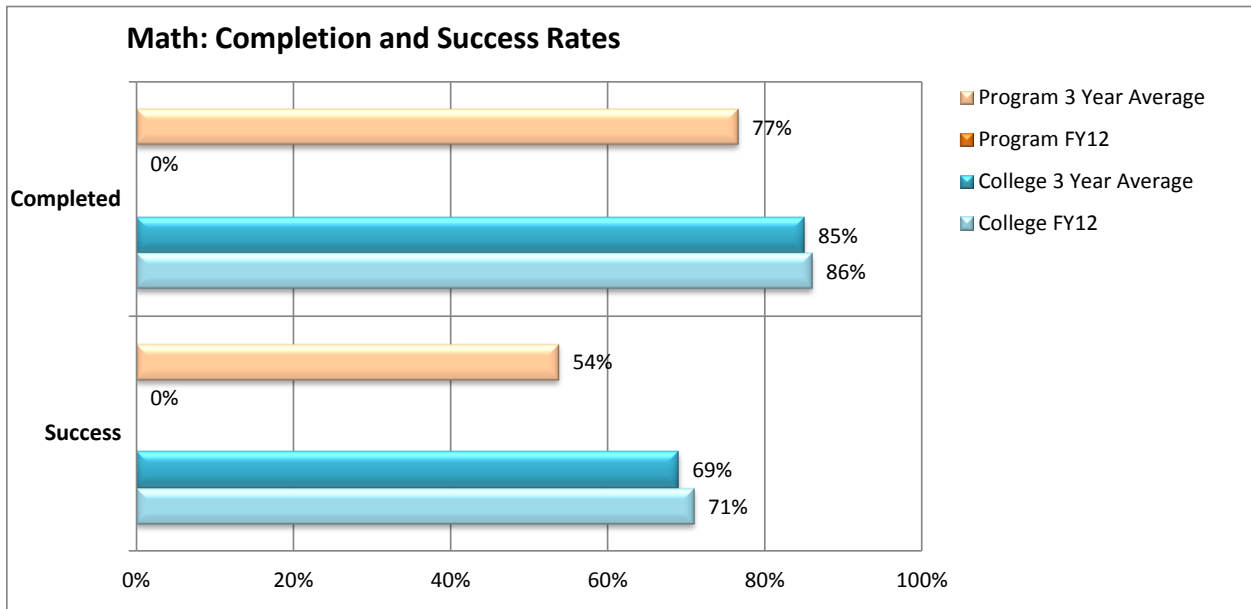
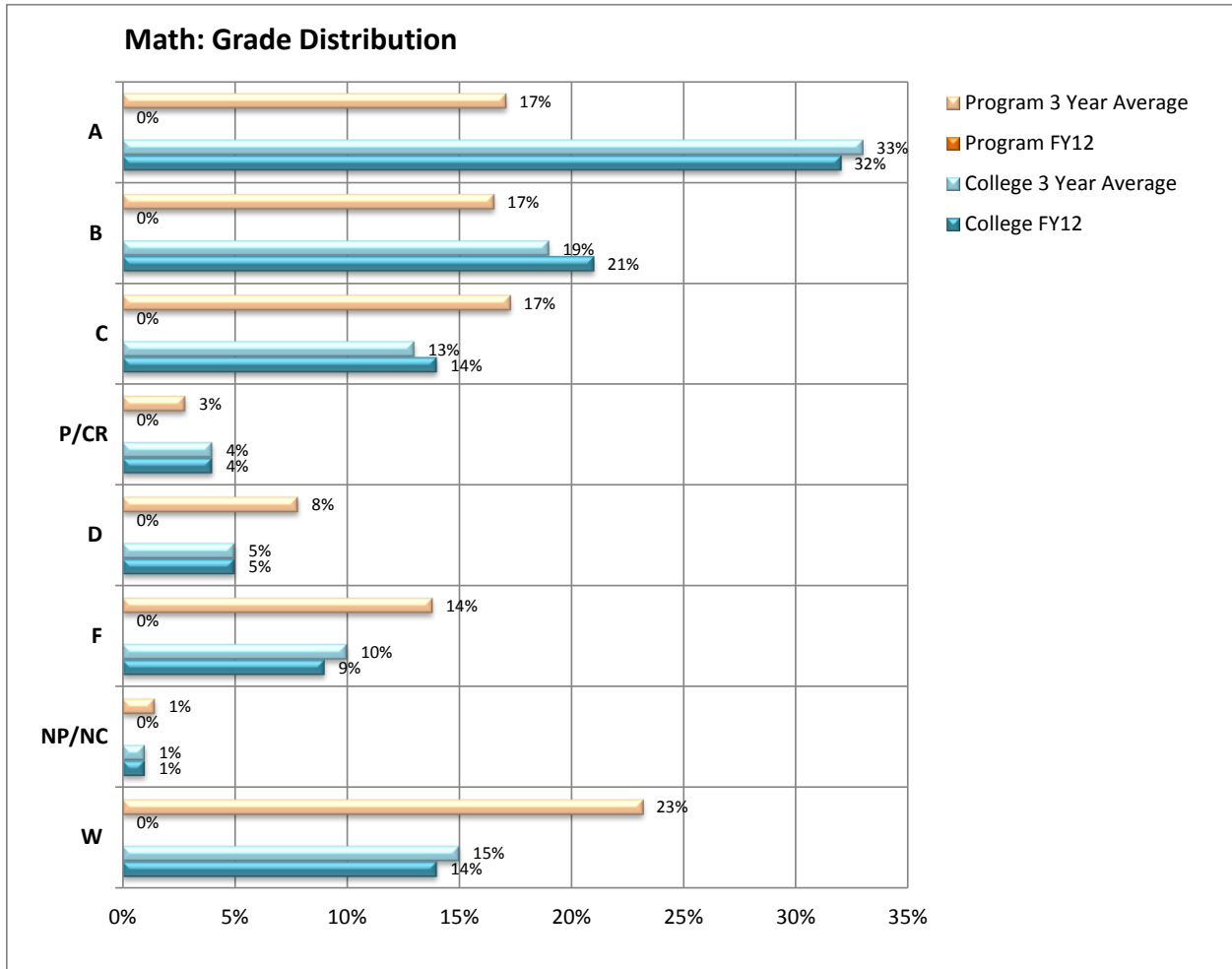
### **3C5: Interpretation of Program Retention, Student Success, and Grade Distribution**

Subject	Fiscal Year	A	B	C	P/CR	D	F	NP/NC	W	Graded	Completed	Success
Math	FY09	1,526	1,447	1,531	85	694	1,232	55	2,207	8,777	6,507	4,589
Math	FY10	1,597	1,500	1,605	318	716	1,309	161	2,110	9,316	7,206	5,020
Math	FY11	1,603	1,629	1,643	370	752	1,276	182	2,097	9,582	7,485	5,275
Math	3 Year Avg	1,575	1,525	1,593	258	721	1,272	133	2,138	9,225	7,066	4,961
Math	FY12	1,775	1,657	1,777	411	772	1,273	200	2,456	-	7,865	5,620

Subject	Fiscal Year	A	B	C	P/CR	D	F	NP/NC	W	Graded	Completed	Success
Math	FY09	17%	16%	17%	1%	8%	14%	1%	25%	100%	74%	52%
Math	FY10	17%	16%	17%	3%	8%	14%	2%	23%	100%	77%	54%
Math	FY11	17%	17%	17%	4%	8%	13%	2%	22%	100%	78%	55%
Math	3 Year Avg	17%	17%	17%	3%	8%	14%	1%	23%	100%	77%	54%
Math	FY12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
<b>College</b>	<b>3 Year Avg</b>	<b>33%</b>	<b>19%</b>	<b>13%</b>	<b>4%</b>	<b>5%</b>	<b>10%</b>	<b>1%</b>	<b>15%</b>	<b>100%</b>	<b>85%</b>	<b>69%</b>
College	FY12	32%	21%	14%	4%	5%	9%	1%	14%	100%	86%	71%

The total number of graded students is missing for FY12, but it should be 10,321. There is a huge increase from the previous year of 9,582. The completed percentage is 76%, very close to our department average. The success percentage is 54%, equal to our department average. We would like to see these numbers increase in future years. We hope to have some of our initiatives funded, in particular advancing the tutoring and SI programs. We feel that this will result in an increase in completion and success rates for students in our department.

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The FY12 information is missing in these graphs, but is referenced above, directly below the data table.

### **3C6: Interpretation of the Program Completion Information**

Math: Student Certificates and Degrees					
Program	FY	Certificates	Degrees	Female	Male
Math	FY09	-	-	-	-
Math	FY10	-	-	-	-
Math	FY11	-	-	-	-
Math	FY12	-	-	-	-
<b>Total Awards in 4 Years</b>		-	-	-	-

We do not currently offer any degrees nor certificates, but we are in process of submitting a SB1440 degree for future years.

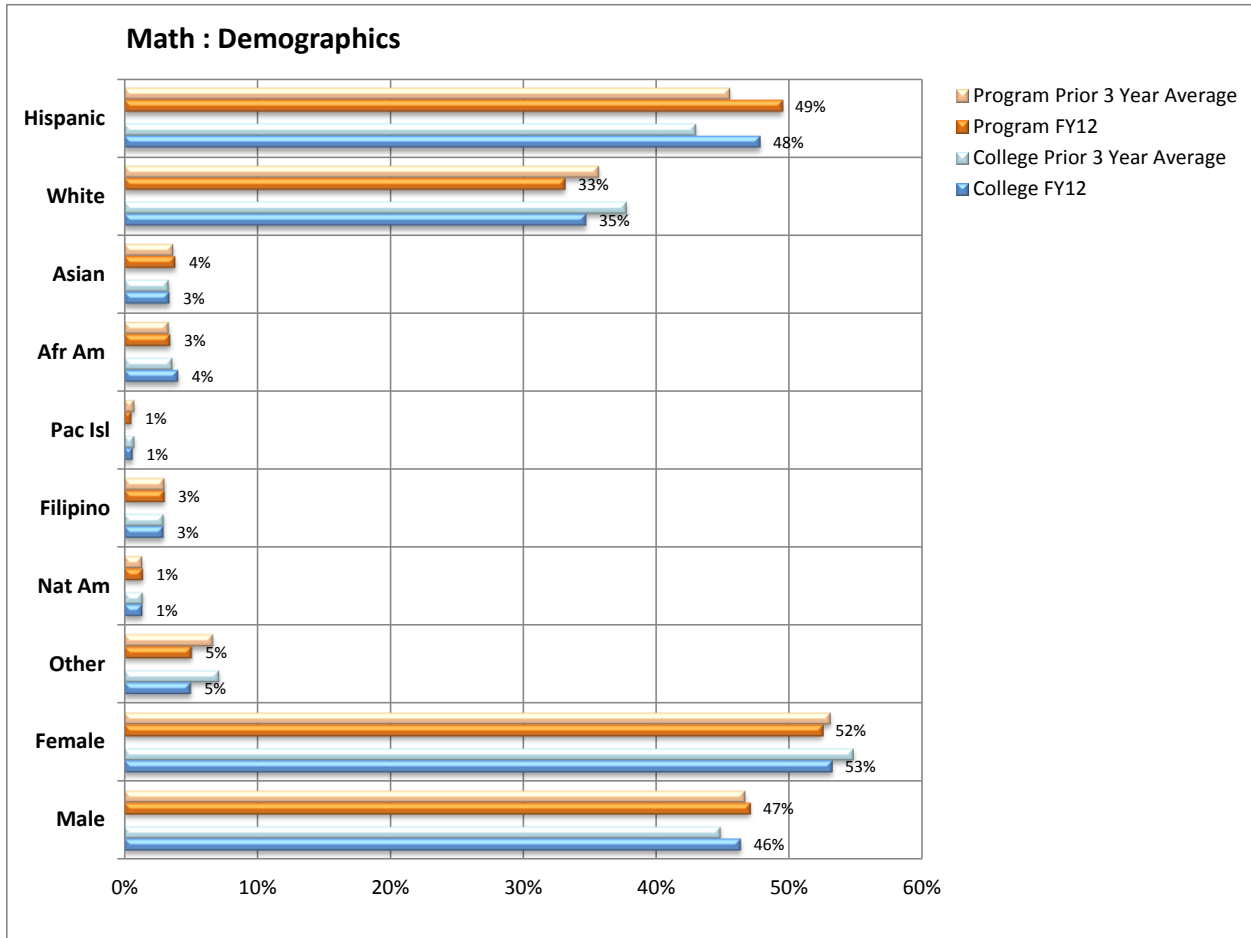
### **3C7: Interpretation of the Program Demographic Information**

Subject	FY	Hispanic	White	Asian	Afr Am	Pac Isl	Filipino	Nat Am	Other	Female	Male	Other	Avg Age
Math	FY09	3,824	3,180	342	293	78	258	123	685	4,707	4,034	42	26
Math	FY10	4,198	3,448	291	304	69	260	100	649	4,883	4,411	25	25
Math	FY11	4,579	3,246	386	331	61	319	151	514	5,104	4,474	9	25
<b>Math</b>	<b>3 Year Avg</b>	<b>4,200</b>	<b>3,291</b>	<b>340</b>	<b>309</b>	<b>69</b>	<b>279</b>	<b>125</b>	<b>616</b>	<b>4,898</b>	<b>4,306</b>	<b>25</b>	<b>25</b>
Math	FY12	4,953	3,317	385	347	54	304	141	509	5,255	4,710	45	24
<b>College</b>	<b>3 Year Avg</b>	<b>12,714</b>	<b>11,174</b>	<b>990</b>	<b>1,074</b>	<b>223</b>	<b>880</b>	<b>414</b>	<b>2,110</b>	<b>16,221</b>	<b>13,261</b>	<b>97</b>	<b>27</b>
College	FY12	13,598	9,875	966	1,157	183	842	390	1,424	15,137	13,183	115	25

Subject	FY	Hispanic	White	Asian	Afr Am	Pac Isl	Filipino	Nat Am	Other	Female	Male	Other	Avg Age
Math	FY09	44%	36%	4%	3%	1%	3%	1%	8%	54%	46%	0%	26
Math	FY10	45%	37%	3%	3%	1%	3%	1%	7%	52%	47%	0%	25
Math	FY11	48%	34%	4%	3%	1%	3%	2%	5%	53%	47%	0%	25
<b>Math</b>	<b>3 Year Avg</b>	<b>46%</b>	<b>36%</b>	<b>4%</b>	<b>3%</b>	<b>1%</b>	<b>3%</b>	<b>1%</b>	<b>7%</b>	<b>53%</b>	<b>47%</b>	<b>0%</b>	<b>24</b>
Math	FY12	49%	33%	4%	3%	1%	3%	1%	5%	52%	47%	0%	24
<b>College</b>	<b>3 Year Avg</b>	<b>43%</b>	<b>38%</b>	<b>3%</b>	<b>4%</b>	<b>1%</b>	<b>3%</b>	<b>1%</b>	<b>7%</b>	<b>55%</b>	<b>45%</b>	<b>0%</b>	<b>27</b>
College	FY12	48%	35%	3%	4%	1%	3%	1%	5%	53%	46%	0%	24



# Mathematics Program Review 2012-2013



The demographics of the department seem to represent the diversity of the population of our community, and in line with the demographics of the college as a whole. The demographics have been fairly steady, but we are proud to be continually serving Hispanic students at an even greater rate.

## 4. Performance Assessment

### 4A1: 2012-2013 Institutional Level Student Learning Outcomes

Institutional Level Student Learning Outcome 1	Performance Indicators
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## Mathematics Program Review 2012-2013

Communication	
<b>Operating Information</b>	
<b>Analysis – Assessment</b>	

Institutional Level Student Learning Outcome 2	Performance Indicators
Reasoning – Scientific and Quantitative	
<b>Operating Information</b>	
<b>Analysis – Assessment</b>	

Institutional Level Student Learning Outcome 3	Performance Indicators
Critical Thinking and problem solving	
<b>Operating Information</b>	
<b>Analysis – Assessment</b>	

Institutional Level Student Learning Outcome 4	Performance Indicators
Information Literacy	
<b>Operating Information</b>	

## Mathematics Program Review 2012-2013

<b>Analysis – Assessment</b>

Institutional Level Student Learning Outcome 5	Performance Indicators
Personal/community awareness and academic / career responsibilities	

<b>Operating Information</b>
<b>Analysis – Assessment</b>

The assessment of these will begin in this next year.

**4A2: 2012-2013 Program Level Student Learning Outcomes - For programs/departments offering degrees and/or certificates**

Program-Level Student Learning Outcome 1	Performance Indicators
<b>Operating Information</b>	
<b>Analysis – Assessment</b>	

Program-Level Student Learning Outcome 2	Performance Indicators
<b>Operating Information</b>	

## Mathematics Program Review 2012-2013

Analysis – Assessment

Program-Level Student Learning Outcome 3	Performance Indicators
Operating Information	
Analysis – Assessment	

Program-Level Student Learning Outcome 4	Performance Indicators
Operating Information	
Analysis – Assessment	

Program-Level Student Learning Outcome 5	Performance Indicators
Operating Information	
Analysis – Assessment	

4A3: 2012-2013 Course Level Student Learning Outcomes - *Refer to TracDat*

# Mathematics Program Review

## 2012-2013

### 4B: 2012-2013 Student Success Outcomes

Student Success Outcome 1	Performance Indicators
The program will increase its retention rate from the average of the <b>program's</b> prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census.	The program will increase the retention rate by 2% or more above the average of the <b>program's</b> retention rate for the prior three years.
<b>Operating Information</b>	
The mathematics department is confident that realization of the initiatives stated below will contribute to increased retention in math courses.	
<b>Analysis – Assessment</b>	
We had no initiatives funded in last year's program review. Our retention rates were flat. This is despite the fact that we served many more students, and had less tutorial support for those students. We hope to have initiatives funded so that students will be better served. This will increase our retention rates.	

Student Success Outcome 2	Performance Indicators
The program will increase its retention rate from the average of the <b>college's</b> prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census.	The program will increase the retention rate by 2% or more above the average of the <b>college</b> retention rate for the prior three years.
<b>Operating Information</b>	
Due to the inherent, difficult nature of mathematics achieving retention rates at or above the college rate is an unrealistic goal.	
<b>Analysis – Assessment</b>	
The mathematics department will strive to show increased retention each year.	

## Mathematics Program Review 2012-2013

Student Success Outcome 3	Performance Indicators
The program will increase the student success rates from the average of the <b>program's</b> prior three-year success rates. The student success rate is the percentage of students at census who receive a grade of C or better.	The program will increase student success rate by 2% or more above the <b>program's</b> average student success rate for the prior three years.
<b>Operating Information</b>	
The mathematics department is confident that realization of the initiatives stated below will contribute to increased success in math courses.	
<b>Analysis – Assessment</b>	
We had no initiatives funded in last year's program review. Our success rates were flat. This is despite the fact that we served many more students, and had less tutorial support for those students. We hope to have initiatives funded so that students will be better served. This will increase our success rates.	

Student Success Outcome 4	Performance Indicators
The program will increase the student success rates from the average of the <b>college's</b> prior three-year success rates. The student success rate is the percentage of students at census who receive a grade of C or better.	The program student success will increase by 5% over the average of the <b>college's</b> student success rate for the prior three years.
<b>Operating Information</b>	
Due to the inherent, difficult nature of mathematics achieving success rates at or above the college rate is an unrealistic goal.	
<b>Analysis – Assessment</b>	
We had no initiatives funded in last year's program review. Our success rates were flat. This is despite the fact that we served many more students, and had less tutorial support for those students. We hope to have initiatives funded so that students will be better served. This will increase our success rates.	

#### 4C. 2012-2013 Program Operating Outcomes

Program Operating Outcome 1	Performance Indicators
The program will maintain WSCH/FTEF above the 550 goal set by the district.	The program will exceed the efficiency goal of 550 set by the district by 2%.
<b>Operating Information</b>	
The department met and exceeded this goal. The department operated at over 100% of the district goal in each of the past Three years. FY 12 performance is about 10% higher than the district goal and shows an improvement over each of the past 3 years.	
<b>Analysis – Assessment</b>	
We have continually improved efficiency, and will continue to do so. Some of our inefficient courses have been terminated, so we expect efficiency to o up again.	

## Mathematics Program Review 2012-2013

Program Operating Outcome 2	Performance Indicators
Inventory of instructional equipment is functional, current, and otherwise adequate to maintain a quality-learning environment. Inventory of all equipment over \$200 will be maintained and a replacement schedule will be developed. Service contracts for equipment over \$5000 will be budgeted if funds are available.	A current inventory of all equipment in the program will be maintained. Equipment having a value over \$5000 will have a service contract. A schedule for service life and replacement of outdated equipment will reflect the total cost of ownership.
<b>Operating Information</b>	
The inventory list is a little better than last year, but more needs to be done.	
<b>Analysis – Assessment</b>	
We have a substantial inventory, and need to make sure that it stays in usable condition.	

#### 4D. Program Review Rubrics for Instructional Programs

##### Academic Programs

Point Value	Element	Score
Up to 6	Enrollment demand	6
Up to 6	Sufficient resources to support the program (ability to find qualified instructors; financial resources; equipment; space)	6
Up to 4	Agreed-upon productivity rate	6
Up to 4	Retention rate	2
Up to 3	Success rate (passing with C or higher)	2
Up to 3	Ongoing and active participation in SLO assessment process	3
Total Points	Interpretation	
22 – 26	Program is current and vibrant with no further action recommendation	
18 – 21	Recommendation to attempt to strengthen the program	
Below 18	Recommendation to consider discontinuation of the program	

**TOTAL      25**

##### CTE Programs

Point Value	Element	Score
Up to 6	Enrollment demand	
Up to 6	Sufficient resources to support the program (ability to find	

## Mathematics Program Review 2012-2013

	qualified instructors; financial resources; equipment; space)	
Up to 6	Program success (degree / certificate / proficiency award completion over 4 year period)	
Up to 4	Agreed-upon productivity rate	
Up to 4	Retention rate	
Up to 4	Employment outlook for graduates / job market relevance	
Up to 3	Success rate (passing with C or higher)	
Up to 3	Ongoing and active participation in SLO assessment process	
<b>Total Points</b>	<b>Interpretation</b>	
31 - 36	Program is current and vibrant with no further action recommendation	
25 - 30	Recommendation to attempt to strengthen the program	
Below 25	Recommendation to consider discontinuation of the program	

### 5. Findings

#### **2012-2013** - FINDINGS

**Finding 1:** We have found that students that have used additional resources, such as tutoring and supplemental instruction (SI), have increased their likelihood of staying in a course and successfully passing. This has been demonstrated by statistics. The budgets for tutoring, SI, and other student support services have been cut. This has resulted in making it difficult for the department to increase success and retention.

**Finding 2:** The success and retention rates for our department are below the college average. We understand that this is at least partially due to the difficulty of the subject matter. We hope that having professional development geared specifically towards our department will improve our success and retention rates.

**Finding 3:** We have had safety issues on the weekend due to the VC Foundation Marketplace. We feel that enclosing the part of the building that is open will solve some of these issues.



# Mathematics Program Review

## 2012-2013

### 6. Initiatives

#### 6A: 2011-2012 - Initiatives

##### Initiative #1

Expand Math Center hours and the SI tutoring program for all levels of mathematics courses

**Initiative ID** MATH 1-11

##### Links to Finding 1

The course level evaluations note that students benefit from out of class help to grasp difficult mathematical concepts. SI tutors and peer tutors provide these opportunities for students. In addition, the SI program provides opportunity for the tutors to be in the classroom to establish rapport with the students and to become familiar with the specific techniques the instructor uses. This experience creates a more effective out of class tutorial session.

**Benefits:** Increased retention and success rates in math courses.

##### Request for Resources

Personnel - Funding for tutors (SI tutors for all levels of math classes and expanded Math Center hours).

##### Funding Sources

No new resources are required (use existing resources)	N
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	Y
Requires computer equipment funds (hardware and software)	N
Requires college equipment funds (other than computer related)	N
Requires college facilities funds	N
Requires other resources (grants, etc.)	Y

# Mathematics Program Review

## 2012-2013

### Initiative #2

Provide faculty access to mathematical and technological workshops for professional development designed specifically for mathematics instruction

### Initiative ID

### Links to Finding 2

The faculty believe that instruction can be enhanced by having access to training and opportunities to collaborate with other math faculty concerning classroom management techniques that specifically relate to mathematics. Many teacher workshops concerning classroom management techniques are not appropriate for mathematics classrooms.

### Benefits

### Request for Resources

Training – Funding to bring in people to present workshops or to send faculty to other locations where workshops are presented that target mathematics instruction.

### Funding Sources

Please check one or more of the following funding sources.

No new resources are required (use existing resources)	N
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	Y
Requires computer equipment funds (hardware and software)	N
Requires college equipment funds (other than computer related)	N
Requires college facilities funds	N
Requires other resources (grants, etc.)	N

# Mathematics Program Review

## 2012-2013

### Initiative #3

Add discussion lab sections for Math 20, 21A, 21B, 21C, 24, and 44

### Initiative ID

### Links to Finding 3

Students regularly complain that they can't find tutors to help them with the calculus sequence and statistics. The discussion sections provide students a more relaxed atmosphere to work with each other and an instructor to practice newly learned techniques and theory.

### Benefits

### Request for Resources

Discussion sections – The department would like funding to bring back discussion sections that once used to be offered here.

### Funding Sources

No new resources are required (use existing resources)	N
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	Y
Requires computer equipment funds (hardware and software))	N
Requires college equipment funds (other than computer related)	N
Requires college facilities funds	N
Requires other resources (grants, etc.)	N

# Mathematics Program Review 2012-2013

## 2011 - 2012 FINAL Program Initiative Priority Ratings

Line Number	Division Code	Program	Category	Program Priority (0, 1, 2, 3,....)	Division Priority (R,H,M,L)	Committee Priority (R, H, M, L)	College Priority (R, H, M, L)	Initiative ID	Initiative ID	Initiative Title	Resource Description	Resource Category	Estimated Cost	Adjusted Cost	Accumulated Costs	Full Time or Part Time
1	31	MATH	Personnel	1	H		M	MATH 11-1	MATH1201	Expansion of SI Prgram and Math Center hours	hire tutors	2	20,000	20,000	20,000	
2	31	MATH	Budget	2	L		L	MATH 11-2	MATH1202	Access to professional development	staff development funding specific to mathematics instruction	8	10,000	10,000	30,000	
3	31	MATH	Other	2	L			MATH 11-2	MATH1202	Access to professional development	staff development funding specific to mathematics instruction	8	10,000		30,000	
4	31	MATH	Faculty	3	L			MATH 11-3	MATH1203	Calculus and Statistics discussion sessions	Add 1 hour lab courses to the current schedule	1	23,000	23,000	53,000	PT
5	31	MATH	Budget	3	L		L	MATH 11-3	MATH1203	Calculus and Statistics discussion sessions	Add 1 hour lab courses to the current schedule	7	23,000	23,000	76,000	

# Mathematics Program Review

## 2012-2013

### 6B: 2012-2013 INITIATIVES

Initiative ID should be consistent. For example:

2011-2012 identified initiatives - ART1201, ART1202, etc.

2012-2013 identified initiatives - ART1301, ART1302, etc.

#### Initiative 1 Expansion of SI program

Initiative ID Math 11-1

Links to Finding 1

We feel that the SI program has been very successful, and this has been corroborated by college statistics. We will have increased SI by use of title V grant money, with additional funding from BSI, but we would also like to expand the program even further.

Benefits –We hope that by expanding the SI program we will improve our success and retention rates.

Request for Resources

We would like to have \$10,000 for increasing the SI program.

Funding Sources

No new resources are required (use existing resources)	N
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	Y
Requires computer equipment funds (hardware and software)	N
Requires college equipment funds (other than computer related)	N
Requires college facilities funds	N
Requires other resources (grants, etc.)	Y

#### Initiative 2: Access to professional development

Initiative ID Math 11-2

Links to Finding 2

Our department has greatly benefitted from professional development that faculty have attended off-campus. Our faculty has also benefitted from on-campus professional development, but much of this has not been targeted specifically to our department.

Benefits –We hope that the added professional development we will improve our success and retention rates.

Request for Resources

We would like to have \$10,000 to bring math-centered facilitators to our campus for professional development.

Funding Sources

No new resources are required (use existing resources)	N
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	Y
Requires computer equipment funds (hardware and software)	N
Requires college equipment funds (other than computer related)	N
Requires college facilities funds	N
Requires other resources (grants, etc.)	N

## Mathematics Program Review 2012-2013

### Initiative 3: Enclosure of north end of SCI building

Initiative ID Math 1301

Links to Finding 3

We feel that the current state of the building is a safety issue.

Benefits –We hope that our faculty will have increased safety in their offices.

Request for Resources

The VC foundation has offered to pay for this.

Funding Sources

No new resources are required (use existing resources)	N
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	N
Requires computer equipment funds (hardware and software)	N
Requires college equipment funds (other than computer related)	N
Requires college facilities funds	N
Requires other resources (grants, etc.)	Y

### Initiative 4: Hiring of Student Services Assistant I (40%) for Math Center

Initiative ID Math 1302

Links to Finding 1

We feel that the new position will allow us to effectively utilize the math center, providing extra access to tutoring and test-proctoring for our students.

Benefits –The increase in tutoring and test-proctoring should improve our success and retention rates.

Request for Resources

We are requesting \$16,084 to pay for this new position

Funding Sources

No new resources are required (use existing resources)	N
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	Y
Requires computer equipment funds (hardware and software)	N
Requires college equipment funds (other than computer related)	N
Requires college facilities funds	N
Requires other resources (grants, etc.)	N

# Mathematics Program Review

## 2012-2013

### 6C: 2012-2013 Program Initiative Priority Ratings

Program	Finding Number	Category	Program Priority (R, H, M, L)	Division Priority (R,H,M,L)	Committee Priority (R, H, M, L)	College Priority (H, M, L)	Initiative ID	Initiative Title	Resource Description	Estimated Cost
Math	1		H				11-1	Expansion of SI program	Personnel	10,000
Math	2		L				11-2	Access to professional development	Payment for outside expert(s)	10,000
Math	3		R				1301	Enclosure of north end of SCI building	Construction/renovation costs	Unknown
Math	1		H				1302	Hiring of Student Services Assistant I for Math Center	Personnel	16,084

# Mathematics Program Review

## 2012-2013

### **6D: PRIORITIZATIONS OF INITIATIVES WILL TAKE PLACE AT THE PROGRAM, DIVISION, COMMITTEE, AND COLLEGE LEVELS:**

#### **Program/Department Level Initiative Prioritization**

All initiatives will first be prioritized by the program/department staff. Prioritize the initiatives using the **RHML** priority levels defined below.

#### **Division Level Initiative Prioritization**

The program initiatives within a division will be consolidated into division spreadsheets. The dean may include additional division-wide initiatives. All initiatives will then be prioritized using the **RHML** priority levels defined below.

#### **Committee Level Initiative Prioritization**

The division's spreadsheets will be prioritized by the appropriate college-wide committees (staffing, technology, equipment, facilities) using the **RHML** priority levels defined below.

#### **College Level Initiative Prioritization**

Dean's will present the consolidated prioritized initiatives to the College Planning Council. The College Planning Council will then prioritize the initiatives using the **RHML** priority levels defined below.

**R:** Required – mandated or unavoidable needs (litigation, contracts, unsafe to operate conditions, etc.).

**H:** High – approximately 1/3 of the total program/department/division's initiatives by resource category (personnel, equipment, etc.)

**M:** Medium – approximately 1/3 of the total program/department/division's initiatives by resource category (personnel, equipment, etc.)

**L:** Low – approximately 1/3 of the total program/department/division's initiatives by resource category (personnel, equipment, etc.)



# Mathematics Program Review

## 2012-2013

### 7. Process Assessment and Appeal

#### 7A. Purpose of Process Assessment

The purpose of program review assessment is to evaluate the process for continual improvement. The process is required for accreditation and your input is very important to us as we strive to improve.

#### 7B. **2012 - 2013** ASSESSMENT QUESTIONS

1. Did you complete the program review process last year, and if so, did you identify program initiatives? **YES**

2a. Were the identified initiatives implemented? **NO, none were funded.**

2b. Did the initiatives make a difference? **No, since none were able to be implemented.**

3. If you appealed or presented a minority opinion for the program review process last year, what was the result? **N/A**

4. How have the changes in the program review process worked for your area? **The changes have made the process function better.**

5. How would you improve the program review process based on this experience? **Streamline the process.**

#### 7C. Appeals

After the program review process is complete, your program has the right to appeal the ranking of initiatives.

If you choose to appeal, please complete the appropriate form that explains and supports your position. Forms are located at the Program Review VC website.

The appeal will be handled at the next higher level of the program review process.