## INSTITUTIONAL PROGRAM REVIEW 2014 – 2015 Program Efficacy Phase: Instruction DUE: April 13, 2015

#### Purpose of Institutional Program Review

Welcome to the Program Efficacy phase of the San Bernardino Valley College Program Review process. Program Review is a systematic process for evaluating programs and services annually. The major goal of the Program Review Committee is to evaluate the effectiveness of programs and to make informed decisions about budget and other campus priorities.

For regular programmatic assessment on campus, the Program Review Committee examines and evaluates the resource needs and effectiveness of all instructional and service areas. These review processes occur on one-, two-, and four-year cycles as determined by the District, College, and other regulatory agencies. Program review is conducted by authorization of the SBVC Academic Senate.

The purpose of Program Review is to:

- Provide a full examination of how effectively programs and services are meeting departmental, divisional, and institutional goals
- Aid in short-range planning and decision-making
- Improve performance, services, and programs
- Contribute to long-range planning
- Contribute information and recommendations to other college processes, as appropriate
- Serve as the campus' conduit for decision-making by forwarding information to appropriate committees

Our Program Review process includes an annual campus-wide needs assessment each Fall, and an in-depth efficacy review of each program on a four-year cycle. All programs are now required to update their Educational Master Plan (EMP) narrative each Fall. In addition, CTE programs have a mid-cycle update (2 years after full efficacy) in order to comply with Title 5 regulations.

Two or three committee members will be meeting with you to carefully review and discuss your document. You will receive detailed feedback regarding the degree to which your program is perceived to meet institutional goals. The rubric that the team will use to evaluate your program is embedded in the form. As you are writing your program evaluation, feel free to contact the efficacy team assigned to review your document or your division representatives for feedback and input.

Draft forms should be written (and submitted to the Dean) so that your review team can work with you at the small-group workshops (Feb 13, Feb 27, Mar 27, and Apr 10, 2015). Final documents are due to the Committee co-chair by **Friday**, **April 13**, **2015** at midnight.

#### It is the writer's responsibility to be sure the Committee receives the forms on time.

In response to campus-wide feedback that program review be a more interactive process, the committee piloted a new program efficacy process in Spring 2010 that included a review team who will work with the writer as they draft their documents during the efficacy process. Another campus concern focused on the duplication of information required for campus reports. As such, the efficacy process now incorporates the EMP sheet, a curriculum report, SLO/SAO documentation already generated elsewhere. The committee continues to strive to reduce duplication of other information while maintaining a high-quality efficacy process.

# Program Efficacy 2014 – 2015

Complete this cover sheet as the first page of your report.

#### **Program Being Evaluated**

Mathematics

#### Name of Division

Mathematics, Business and Computer Technology

#### Name of Person Preparing this Report

Ann Gibbons

#### Names of Department Members Consulted

Vicente Alvarez; Victoria Anemelu; Yvonne Beebe; Lori Ann Blecka; Stephanie Briggs; Kristin Dillard; Moustafa Kanawaiti; Abeir Israeil; Keith Lee; Michael Mayne; Zadock Reid; David Smith; Teri Strong

Extension

8518

#### Name of Reviewers

Kenny Melancon; Joel Lamore

Work Flow	Due Date	Date Submitted
Date of initial meeting with department		3/9/2015
Final draft sent to the dean & committee	4/13/15	4/13/15
Report submitted to Program Review Team		
Meeting with Review Team		
Report submitted to Program Review co-chair		

#### Staffing

List the number of full and part-time employees in your area.

Classification	Number Full-Time	Number Part-time, Contract	Number adjunct, short- term, hourly
Managers	1	0	0
Faculty	15	49	0
Classified Staff	2	0	0
Total	18	49	0



	09-10	10-11	11-12	12-13	13-14
Duplicated Enrollment	9,345	9,248	9,226	8,396	9,558
FTEF	63.50	66.87	67.27	64.26	71.22
WSCH per FTEF	546	528	536	507	516



#### Description:

The Department offers courses in mathematics from arithmetic through differential equations and linear algebra. Students desiring basic skills and advanced mathematical methods find meaningful activities in the math program. Job opportunities in pure mathematics exist and even more in education, business, engineering, and other technical fields that rely on mathematics. Students planning to transfer to 4-year institutions should consult with a counselor regarding the process and requirements.

#### Assessment:

Data show the department continues to grow. During a 5-year period, FTES has slightly risen from 1157 to 1225 (5.88%). While there was decline in 12-13, the growth continued in 13-14. Likewise, FTEF has increated from 63.50 to 71.22 (12.16%). Efficiency has fallen from 546 to 507 during the four years 09 - 13 and has increased this past year to 516. Success rates have improved (4%), as has retention (14.67%). Sections decreased from 09 - 13 (-18.83%) and then increased only in the last year.

#### Department Goals:

- The department wishes to reestablish growth revealed by the data to the left (2009-2014), particularly in the number of sections offered and FTES generated.
- The department wishes to improve student success and retention rates.
- As the number of students being served continues to increase, the department would like to maintain articulation agreements with nearby colleges and universities.

#### Challenges & Opportunities:

- Maintaining growth in scarcity is difficult. Support services space is limited.
- The department offers many courses, making content review arduous, especially with the expectations of maintaining and assessing student learning outcomes. Faculty is aware of course content and makes improvements.
- To maintain articulation agreements, awareness of changes at nearby institutions is warranted. Faculty knowledge is current.

	09-10	10-11	11-12	12-13	13-14
Sections	308	278	261	250	280
% of online enrollment	5%	5%	12%	15%	14%
Degrees awarded	10	12	7	20	18
Certificates awarded	N/A	N/A	N/A	N/A	N/A

Action Plan:

- Advertise Internet-based student support services and those provided on campus.
- Continue to provide pre-assessment opportunities for students through the SSCenter.
- Continue to search for viable solutions for limited space issues, including offering classes in all various platfomrs including online and hybrid.
- Continue to maintain articulation agreements with other 2- and 4-year institutions.
- Increase the number of classes supported by Summplement Instruction (SI) in conjunction with the STEM program through the Success Center

## Part I: Questions Related to Strategic Initiative: Access

Use the demographic data provided to describe how well you are providing access to your program by answering the questions below.

Strategic Initiative	Institutional Expectations									
	Does Not Meet	Meets								
Part I: Access	·									
Demographics	The program does not provide an appropriate analysis regarding identified differences in the program's population compared to that of the general population	The program provides an <u>analysis</u> of the demographic data and provides an interpretation in response to any identified variance. If warranted, discuss the plans or activities that are in place to recruit and retain underserved populations.								
Pattern of Service	The program's pattern of service is not related to the needs of students.	The program provides <u>evidence</u> that the pattern of service or instruction meets student needs. If warranted, plans or activities are in place to meet a broader range of needs.								

Demographics - Academic Years - 2011-12 to 2013-14								
Demographic Measure	Program: Math	Campus-wide						
Asian	4.8%	5.2%						
African-American	16.7%	14.2%						
Hispanic	60.9%	59.2%						
Native American	0.8%	0.3%						
Pacific Islander	0.6%	0.4%						
White	14.3%	16.8%						
Unknown	1.9%	3.9%						
Female	58.1%	54.8%						
Male	41.9%	45.1%						
Disability	7.3%	5.7%						
Age Min:	18	14						
Age Max:	81	84						
Age Mean:	28	29						

Does the program population reflect the college's population? Is this an issue of concern? If not, why not? If so, what steps are you taking to address the issue?

For ethnicity of the campus, the largest difference between those served by the math department and those served by the campus is for African American and White with a difference of 2.5%. For the largest ethnic group, Hispanic, the difference between those served by the department and the campus is 1.7%. The mean difference between those served by the department and campus is 0.5% with a standard deviation of 1.71%. These statistical data values indicate that the ethnic make up of students served by the math department does reflect the ethnic makeup of the campus population.

For gender, the difference between females served by the department and the campus is 3.3% with the department serving a larger percentage. The difference between males served by the department and the campus is 3.2% with the campus serving a larger percentage. The mean difference for gender is 0.5% with a standard deviation of 3.25%. The standard deviation is larger as the department serves more females than the campus and less males than the campus. While these differ from the campus population, there is not a concern as they are statistically acceptable for the department. The department will continue to monitor the demographics for changes.

#### Pattern of Service

How does the pattern of service and/or instruction provided by your department serve the needs of the community? Include, as appropriate, hours of operation/pattern of scheduling, alternate delivery methods, weekend instruction/service.

As the majority of students are required to take math classes as part of their education plan, the department pattern of service is purposefully developed to meet the needs of all students. We offer

classes 6 days a week from Monday – Saturday. There are classes that start as early as 7am and end as late as 10pm. Classes are offered that meet four days a week, two days a week, one day a week. Along with full term traditional classes, there are also late start classes (15 weeks), accelerated classes (8 weeks) and weekend classes.

The department offers classes in a wide variety of delivery methods including traditional, computer aided instruction (CAI), hybrid and online classes. Spring 2015 saw the addition of Math 103 (Trigonometry) in the online format. Hybrid classes are offered in Arithmetic, Prealgebra, Beginning Algebra, Intermediate Algebra, and College Algebra.

In Spring 2014 the department started offering a new class, Math 962 (Arithmetic and Prealgebra), an accelerated course, which gives students the option of completing the equivalent of both Math 942 (Arithmetic) and Math 952 (Prealgebra) in one semester.

In the last 4 years, many of the surrounding 4 year schools have changed the requirement for nursing, business and other majors and many students now must complete Math 108 (Statistics) in order to be able to transfer. We have responded to this need by increasing the number of sections offered going from offering 2 sections 4 years ago to now offering 9 sections in fall 2015.

Two possible new classes, Finite Math and Business Calculus, are being researched to determine if they will fulfill a need for students in the future.

Strategic Initiative	Institutional Expectations									
	Does Not Meet	Meets								
Part II: Student Succes	s – Rubric									
Data/analysis demonstrating achievement of instructional or service success	Program does not provide an adequate <u>analysis</u> of the data provided with respect to relevant program data.	Program provides an <u>analysis</u> of the data which indicates progress on departmental goals. If applicable, supplemental data is analyzed.								
Student Learning Outcomes (SLOs)	Program has not demonstrated that they are continuously assessing Student Learning Outcomes (SLOs) based on the plans of the program since their last program efficacy. Evidence of data collection, evaluation, and reflection/feedback, and/or connection to student learning is missing or incomplete.	Program has demonstrated that they are continuously assessing Student Learning Outcomes (SLOs) based on the plans of the program since their last program efficacy. Evidence of data collection, evaluation, and reflection/feedback, and connection to student learning is complete.								

## Part II: Questions Related to Strategic Initiative: Student Success

Provide an analysis of the data and narrative from the program's EMP Summary and discuss what it reveals about your program. (Use data from the Charts 3 & 4 that address Success & Retention and Degrees and Certificates Awarded")

The success rates have risen slightly in the past four years. In 09-10 the rates was 53%. This increased to 55% for 10-11, 12-13 and 13-14. It was at a high of 57% in 11-12. The retention rates have risen steadily as evidenced in chart 3. The faculty in the math department are aware of student services and actively convey this information to them. There has been a marked increase in participation by students in the Success Center which will continue to improve retention and success rates. Additionally, many of the instructors are now working with SI leaders to support student learning and increase the successful completion of the course.

With the exception of a dip in the 11-12 year, the number of degrees awarded has increased from 10 in 09-10 to 18 in 13-14 as evidenced in Chart 4. With an eye to increasing the number of math degrees and in an effort to educate future Valley College students, with the support of the math department, each year the Success enter invites high school students from the feeder schools to special events highlighting all the possible careers with a math degree.

#### **Supplemental Data**

Provide any additional information, such as job market indicators, standards in the field or licensure rates that would help the committee to better understand how your program contributes to the success of your students.

Almost all students will have to take at least on math course during their tenure at Valley College. As we see most students, it is important that they can succeed in our classes in order to transfer, graduate, or complete a certificate.

At Valley College, there are many underrepresented students in STEM majors who are required to complete higher level math classes, most including a year of Calculus. The department has increased the number of offerings in the higher level mathematics courses to meet the needs of the STEM majors, including the addition of sections of Math 251 and Math 266.

File	Size	Date Date	Time	File Type
Previous Directory				
ARCHIVE	Ob	Fri, Feb 07, 2014	11:19:46 AM	Directory
MATH AS DEGREE.doc	31.5k	Tue, Jan 15, 2008	03:34:59 PM	File
aSLO math 090.docx	25.51k	Fri, Feb 07, 2014	11:20:03 AM	File
aSLO math 093.docx	24.36k	Fri, Feb 07, 2014	11:20:06 AM	File
aSLO math 095.docx	25.03k	Fri, Feb 07, 2014	11:20:08 AM	File
aSLO math 102.docx	25.08k	Fri, Feb 07, 2014	11:20:10 AM	File
aSLO math 103.docx	25.58k	Fri, Feb 07, 2014	11:20:12 AM	File
aSLO math 108.docx	25.38k	Fri, Feb 07, 2014	11:20:14 AM	File
aSLO math 115.docx	25.96k	Fri, Feb 07, 2014	11:20:19 AM	File
aSLO math 151.docx	26.6k	Fri, Feb 07, 2014	11:20:20 AM	File
aSLO math 250.docx	27.21k	Fri, Feb 07, 2014	11:20:27 AM	File
aSLO math 251.docx	27.78k	Fri, Feb 07, 2014	11:20:29 AM	File
aSLO math 252.docx	28.05k	Fri, Feb 07, 2014	11:20:31 AM	File
aSLO math 265.docx	27.95k	Fri, Feb 07, 2014	11:20:36 AM	File
aSLO math 266.docx	26.22k	Fri, Feb 07, 2014	11:20:39 AM	File
aSLO math 942.docx	23.55k	Fri, Feb 07, 2014	11:20:42 AM	File
aSLO math 952.docx	23.59k	Fri, Feb 07, 2014	11:20:45 AM	File

#### **Student Learning Outcomes**

**Course SLOs.** Demonstrate that your program is continuously assessing Course Student Learning Outcomes (SLOs), based on the plans of the program since the last efficacy review. Include evidence of data collection, evaluation, and reflection/feedback, and describe how the SLOs are being used to improve student learning (e.g., faculty discussions, SLO revisions, assessments, etc.). This section is required for all programs.

The list above shows that all classes taught by the department have SLO's.

Since the last efficacy review, the department has reviewed and rewritten the course SLOs. In October 2013 the new SLOs were developed and collection of SLO data for the new SLOs started in Spring 2014. All sections offered by the department assess the SLOs and the data is collected by the faculty and recorded. We have reached almost 100% collection for the last 3 semesters in both assessment and collection of SLO data.

The evaluation of the data is on a 3 year cycle and will continue as such. Each year the department meets to review the findings and discusses a need for updates or changes. This semester, during a discussion of the current SLO instrument for Math 102 (College Algebra) it was agreed that one of the current assessment questions was not written in such a way as to clearly determine if the SLO had been met by each student. The particular problem on the SLO instrument was updated and will be revisited after the data collection at the end of this semester. In this same manner, continuous reviewing of data and faculty discussions will be utilized to improve student learning.

The faculty will train on using the new SLO cloud for collecting SLO results and the faculty chair will work with the adjunct faculty to ensure that all data is input in the new system.

**Instructional Program SLOs.** If your program offers a degree, certificate, or TMC, describe how the SLOs are being used to improve student learning at the program level (e.g., faculty discussions, SLO revisions, assessments, etc.). Include a discussion of how the **courses are mapped to the program**, and how this set of

data is either being evaluated or is planned to be evaluated. If your program does not offer a degree, certificate, or TMC, this section is optional (but encouraged

See Strategic Goal 2.11

Below is the current PLOs for the Math Department:

Upon successful completion of the required coursework offering broad exposure to subject areas which are included in natural sciences, social and behavioral sciences, humanities, communication and critical thinking, physical and health education, and in-depth coursework in mathematics, students earning an Associate of Arts/Science degree in Mathematics frm San Bernardino Valley College will:

- 1. Be prepared to transfer to an accredited, 4-year college or university with junior class standing in mathematics or a related major.
- 2. Integrate mathematical concepts and principles to other science disciplines.
- 3. Develop a world view that incorporates the role of mathematics in modern society.
- 4. Solve work-related problems by employing mathematical concepts to formulate and solve representative mathematical models.
- 5. Be prepared to apply mathematical knowledge and skills required in securing and maintaining employment.

At this point, we have not yet begun the process of mapping the course SLOs to the PLOs. This discussion has started this semester and is the plan of the department to first review the PLOs to determine if they need to be revised. We will then start the process of mapping the course SLOs to the PLOs. As we discuss how this will be done we will evaluate the data that has been collected to determine if the SLOs and assessment tools will need revisions. After the mapping is complete, the department will determine, through faculty discussions, how to use the data to improve student learning at the department level.

**Institutional SLOs/Core Competencies.** Complete the <u>Core Competency grid</u> below. Describe how the Institutional SLOs/Core Competencies are being used to improve student learning in your program (e.g., faculty discussions, SLO revisions, assessments, etc.). This section is required for all programs.

	San Bernardino Valley College Department: <u>Math</u> For each course, use an x to identify the core competencies that are given a major emphasis and are measured.	MATH 942	MATH 942 A-C	MATH 952	MATH 952 A-D	MATH 090	MATH 090 Online	MATH 093	MATH 095	MATH 095 Online	MATH 102	MATH 103	MATH 108	MATH 115	MATH 151	MATH 222	MATH 223	MATH 250	MATH 251	MATH 252	MATH 265	MATH 266	MATH 285	MATH 286
~	1.1 Read and retain information	х	х	Х	X	х	X	X	X	х	х	х	х	х	х			х	х	х	х	X	X	X
13	1.2 Write clearly																							
B	1.3 Speak clearly																							
3	1.4 Employ vocabulary of the subject studied	x	X	X	x	x	X	x	x	X	х	x	X	x	X			x	x	x	х	x	X	X
	1.5 Demonstrate active listening skills																							
~	2.1 Find and interpret information																		х	х	х	х	х	х
l . B	2.2 Evaluate authority and bias of information																							
123	2.3 Utilize technology to organize and present information																							
	2.4 Demonstrate working knowledge of basic computer function																							
E.	3.1 Evaluate strengths, weaknesses and fallacies of logic							X						X										
혿	3.2 Locate, evaluate and select evidence to support or discredit an argument							х																
Ē	3.3 Construct a persuasive argument							х																
8	3.4 Apply learned knowledge to new situations	X	Х	X	х	Х	х	Х	х	Х	Х	X	Х	X	Х	Х	Х	Х	Х	Х	Х	Х	X	Х
12	3.5 Apply principles of scientific reasoning to solve problems	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Х	X	Х	X	X	X	х	X	X
Ŭ	3.6 Defend a logical hypothesis to explain observed phenomenon																							
	4.1 Accept responsibility for own actions																							
	4.2 Demonstrate respect for a diversity of ideas and the rights of others																							
5	4.3 Exhibit personal, professional and academic honesty																							
Ĕ	4.4 Display behavior consistent with ethical standards w/in a discipline																							
L m	4.5 Apply lessons from the past to ethical issues faced in the present																							
	4.6 Evaluate own ethical beliefs in relationship to moral dilemmas																							
	4.7 Assume civic, political or social responsibilities																							
<u> </u>	5.1 Recognize own strengths and weaknesses																							
Š	5.2 Recognize own biases and values																							
Ē.	5.3 Recognize own learning style																							
ssic Tess	5.4 Give and receive constructive feedback																							
pre l	5.5 Develop time management skills																							
ŭğ.	5.6 Set goals for educational, personal and professional development																							
ă,	5.7 Set goals to create balance in personal and professional life																							
Lea	5.8 Evaluate diverse artistic works																							
0	5.9 Demonstrate creative thought through original expression																							
_	6.1 Demonstrate etiquette in face-to-face and written interactions																							
Light Light	6.2 Work effectively in group settings																						$\neg$	-
ultr act	6.3 Utilize conflict resolution skills																						$\neg$	
O E O	6.4 Demonstrate knowledge of and respect for other cultures																						$\neg$	
1 2 0	6.5 Demonstrate knowledge of and respect for one's own culture																							

The core competencies are related directly to the SLO assessment instruments, showing support for the college SLOs. For example, if we look at the questions on the assessment tools, each assessment problem that is successfully completed by a student will also be evidence of one of the core competencies. In the Math 095 (Intermediate Algebra) course, one of the SLOs is "Students will demonstrate the ability to simplify radical expressions and solve equations containing radicals." A student who meets the SLO will have to understand the employ the vocabulary in order to successfully demonstrate understanding. Since students will be using material from the previous material, in order to meet the SLO, the student will need to apply learned material to new situations. Finally, a student meeting this SLO demonstrates the student has been able to read and retain the information.

When department members meet to discuss SLO outcomes, the conversation includes evaluating of the various core competencies have been demonstrated by the results. When evaluating and revising new SLO assessment tools, the core competencies are considered and represented.

## Part III: Questions Related to Strategic Initiative: Institutional Effectiveness

Strategic	Institutional Expectations								
Initiative	Does Not Meet	Meets							
Part III: Institutio	nal Effectiveness - Rubric	I							
Mission and Purpose	The program does not have a mission, or it does not clearly link with the institutional mission.	The program has a mission, and it links clearly with the institutional mission.							
Productivity	The data does not show an acceptable level of productivity for the program, or the issue of productivity is not adequately addressed.	The data shows the program is productive at an acceptable level.							
Relevance, Currency, Articulation	The program does not provide evidence that it is relevant, current, and that courses articulate with CSU/UC, if appropriate. Out of date course(s) that are not launched into Curricunet by Oct. 1 may result in an overall recommendation no higher than Conditional.	The program provides evidence that the curriculum review process is up to date. Courses are relevant and current to the mission of the program. Appropriate courses have been articulated or transfer with UC/CSU, or plans are in place to articulate appropriate courses.							

#### Mission and Purpose:

SBVC Mission: San Bernardino Valley College provides quality education and services that support a diverse community of learners.

What is the mission statement of the program?

The math department actively seeks to support and attract a diverse student population to all levels of mathematics courses.

How does this purpose relate to the college mission?

The math department serves a diverse community of learners, from those requiring developmental remediation, to basic skills, to those needing to complete degree and transfer requirements. For remediation students, the department offers two paths for Arithmetic and Prealgebra, one that completes the work in one semester and one that completes the work in two semesters. These courses cover the fundamentals of math. For the basic skills classes, the department offers Beginning and Intermediate Algebra. For transfer students, the department offers a full range of classes students need and all classes have been articulated with both UC and CSUs.

Students have access to services including tutoring and workshops offered through the STEM grand in the success center. The center is opened from 8am – 8pm Monday – Thursday and 8am – 4pm on Friday and 9am – noon on Saturday. Additionally, many instructors have SI leaders for their courses which offer additional time with

the SI leader for supplemental instruction. Full time faculty members maintain stated office hours and there is a large office in the division for adjuncts to meet students.

#### Productivity

Provide additional analysis and explanation of the productivity data and narrative in the EMP Summary, if needed. (Use data from charts 1 and 2 (FTEs; Enrollment; FTFE and WSCH per FTFE) on page 3 of this form). Explain any unique aspects of the program that impact productivity data for example; Federal Guidelines, Perkins, number of workstations, licenses, etc.

From the years 09-10 through 11-12 there was growth in the number of classes offered, FTES, and FTEF. Over these three years FTES increased from 1156 to 1200 and FTEF rose from 63.50 to 67.27. There was a drop in both FTES and FTEF for 12-13 due to cuts, then jumps in both FTES and FTEF for 13-14 with FTES at 1224 and FTEF at 71.22. Efficiency dropped from 546 to 507 from 09-10 to 12-13. There was then an increase in 13-14 at 516. Success rates have improved (4%), as has retention (14.67%). Sections decreased from 09 - 13 (-18.83%) and then increased only in the last year.

#### **Relevance and Currency, Articulation of Curriculum**

If applicable to your area, describe your curriculum by answering the questions that appear after the Content Review Summary from Curricunet.

The Content Review Summary from Curricunet indicates the program's current curriculum status. If curriculum is out of date, explain the circumstances and plans to remedy the discrepancy.

All curriculum is up to date.

Aathematics, Business & Computer Technology										
Mathematics										
Course	Status	Last Content Review	Next Review Date							
MATH090 Elementary Algebra	Active	11/04/2013	11/04/2019							
MATH093 Plane Geometry	Active	02/07/2011	02/07/2017							
MATH095 Intermediate Algebra	Active	02/07/2011	02/07/2017							
MATH102 College Algebra	Active	02/07/2011	02/07/2017							
MATH103 Plane Trigonometry	Active	05/16/2011	05/16/2017							
MATH108 Introduction to Probability and Statistics	Active	10/12/2010	10/12/2016							
MATH115 Ideas of Mathematics	Active	02/07/2011	02/07/2017							
MATH151 Precalculus	Active	11/04/2013	11/04/2019							
MATH222 Independent Study in Mathematics	Active	04/04/2011	04/04/2017							

MATH250 Single Variable Calculus I	Active04/01/2013	04/01/2019
MATH251 Single Variable Calculus II	Active04/01/2013	04/01/2019
MATH252 Multivariable Calculus	Active04/18/2011	04/18/2017
MATH265 Linear Algebra	Active04/18/2011	04/18/2017
MATH266 Ordinary Differential Equations	Active04/01/2013	04/01/2019
MATH942 Arithmetic	Active 12/06/2010	12/06/2016
MATH942A Arithmetic: Whole Numbers	Active 12/06/2010	12/06/2016
MATH942B Arithmetic: Fractions and Decimals	Active 12/06/2010	12/06/2016
MATH942C Arithmetic: Proportions, Ratios, Percents, and Geometry	Active 12/06/2010	12/06/2016
MATH952 Prealgebra	Active 12/06/2010	12/06/2016
MATH952A Prealgebra: Integers	Active 12/06/2010	12/06/2016
MATH952B Prealgebra: Fractions	Active 12/06/2010	12/06/2016
MATH952C Prealgebra: Exponents and Linear Equations	Active 12/06/2010	12/06/2016
MATH952D Prealgebra: Decimals, Percent, and Ratios	Active 12/06/2010	12/06/2016
MATH962 Arithmetic and Prealgebra	Active 11/04/2013	11/04/2019

Articulation and Transfer

List Courses above 100 where articulation or transfer is <b>not</b> occurring	With CSU	With UC
N/A		

Describe your plans to make these course(s) qualify for articulation or transfer. Describe any exceptions to courses above 100.

All courses above the 100 level have articulation agreements.

### Currency

Follow the link below and review the last college catalog data. http://www.valleycollege.edu/academic-career-programs/college-catalog.aspx

Is the information given accurate? Which courses are no longer being offered? (Include Course # and Title of the Course). If the information is inaccurate and/or there are listed courses not offered, how does the program plan to remedy the discrepancy?

Yes, the information is accurate. The following classes are not currently offered as they are specialized classes that are offered as needed: Math 942A (Arithmetic: Whole numbers), Math 942B (Arithmetic: Fractions and Decimals), Math 942C (Arithmetic: Proportions, Ratios, Percents, and Geometry) Math 952A (Prealgebra: Integers), Math 952B (Prealgebra: Fractions), Math 952C (Prealgebra: Exponents and Linear Equations), Math 952D (Prealgebra: Decimals, Percents and Ratios), Math 222 (Independent Study in Mathematics).

Strategic Initiative	Institutional Expectations			
	Does Not Meet	Meets		
Part IV: Planning - Rubric				
Trends	The program does not identify major trends, or the plans are not supported by the data and information provided.	The program <u>identifies and describes</u> major trends in the field. Program addresses how trends will affect enrollment and planning. Provide data or research from the field for support.		
Accomplishments	The program does not incorporate accomplishments and strengths into planning.	The program incorporates substantial accomplishments and strengths into planning.		
Challenges	The program does not incorporate weaknesses and challenges into planning.	The program incorporates weaknesses and challenges into planning.		

# Part IV: Planning

What are the trends, in the field or discipline, impacting your student enrollment/service utilization? How will these trends impact program planning?

There is currently a nationwide demand for STEM (Science, Technology, Engineering, and Math) to fulfill the needs in the future workforce. At the March 23, 2015 White House Science Fair, President Obama spoke about the need for an increase in the number of students in STEM majors. The president also spoke to the White House commitment increase the number of underrepresented students in the STEM majors. The department realizes that in order to meet this need, there needs to be growth in the number of 200 level math courses as these are needed for all STEM majors. We have added another section of both Math 251 and Math 266 for Fall semester. The department will continue to assess the needs and increase the number of these classes when needed.

At Valley College, many students have to take a large number math classes in order to complete their degree requirements or courses for transfer, often causing students to spending an extra year before transfer just to complete the math requirements. The new Math 962 (Arithmetic and Prealgebra) course is an accelerated 1 semester course which replaces the two courses, Math 942 (Arithmetic) and Math 952 (Prealgebra) giving students the opportunity to complete the classes in less time. Various pairs of 8- week classes are also offered in pairs, for example Math 090 (Beginning Algebra) and Math 095 (Intermediate Algebra), are offered in a single semester at the same time, giving students the opportunity to complete a years of required math in one semester. The department will continue to be aware of changing needs of math students and incorporate them in the program.

#### Accomplishments and Strengths

Referencing the narratives in the EMP Summary, provide any additional data or new information regarding the accomplishments of the program, if applicable. In what way does your planning address accomplishments and strengths in the program?

- One of the departmental goals for the last two years was to promote student success. The
  use of supplemental instruction (SI) has been shown to increase student success at other
  institutions and is practiced across the country. The department has purposefully, in
  conjunction with the STEM grant, increased the number of sections offered with Sis
  leadership. More than 20% of the math sections for fall 2015 will have SIs. These include all
  levels of math from developmental math through Calculus and Differential Equations. The
  department will continue to partner with the STEM grant to grow the resources available for
  students to improve student success.
- Student results for new students taking the math assessment test, Accuplacer, show that a large percentage of students test into the remediation and basic skills classes. Over the years, math faculty have spoken to the fact that many students may have assessed into a higher level math class if they had reviewed before taking the test. In response, the math department has developed a Pre-assessment workshop model where students can attend for review and practice before taking the test. The workshops have been conducted by both faculty and the STEM program on campus for the last three semesters. Additionally, this semester, workshops were taken directly to the feeder high school. Students attended the workshops and immediately were able to take the assessment on their own high school campus. The program will continue to serve new students giving them the opportunity to improve assessment scores.
- The department goal over the last 5 years has been to increase the number of degrees awarded in math. The data shows an average of almost 10 degrees were awarded between 2009 and 2012. This is followed by a marked increase with an average of 19 degrees awarded between 2012 and 2014. That represents an almost 100% increase in the number of math degrees in the last two years. The department will continue to work together to improve these numbers.

#### Challenges

Referencing the narratives in the EMP Summary and/or your data, provide any additional data or new information regarding planning for the program. In what way does your planning address trends and weaknesses in the program?

- Math is a sequential topic. Students must learn and retain the material in each class as it will be
  needed when working through the required courses. One of the continuing issues with success in
  math courses is the need for consistent instruction. In the department there are15 full time faculty
  (with one with 100% release time) and 49 adjunct instructors. It is harder to provide consistency
  when less than 40% of the courses offered are taught by full time faculty. The department will
  continue to support the hard working adjunct instructors, but it would serve the program and the
  college well if there were more full time faculty in the math department.
- Maintaining growth in scarcity is difficult. The Success Center is bursting at the seams. This is
  where the SI leaders, tutors, and counseling staff go to support student learning. The STEM
  grant is also held in the Success Center. The scheduling of SI leaders in rooms and offices in
  which to hold workshops and office hours is very difficult. The department is fully committed to
  student success, so we will continue to assess the situation and look for additional places for
  student services and academic support.

## V: Questions Related to Strategic Initiative: Technology, Campus Climate and Partnerships

Strategic Initiative	Institutional Expectations		
	Does Not Meet	Meets	
Part V: Tech	nology, Partnerships & Campus Climate		
	Program does not demonstrate that it incorporates the strategic initiatives of Technology, Partnerships, or Campus Climate.	Program demonstrates that it incorporates the strategic initiatives of Technology, Partnerships and/or Campus Climate.	
	Program does not have plans to implement the strategic initiatives of Technology, Partnerships, or Campus Climate	Program has plans to further implement the strategic initiatives of Technology, Partnerships and/or Campus Climate.	

Describe how your program has addressed the strategic initiatives of technology, campus climate and/or partnerships that apply to your program. What plans does your program have to further implement any of these initiatives?

**Technology:** The math department currently offers 14 online classes which include Statistics and Trigonometry along with other courses. There are also 19 hybrid classes including Math 942 and Math 952. An increasing number of faculty, both fulltime and adjunct are utilizing course management system for the on campus classes as well. These systems provide students with supplemental material including videos, animations, and interactive graphing tools electronic copies of the textbook.

Last year, the department purchased smart pens which allow instructors to produce lectures, presentations, explanations and solutions to a file that can be uploaded to the online course room for students to access at any time. Some full time faculty are now producing videos to upload to the online course room to add supplemental materials and extra help that student can access.

We have had 2 demonstrations as we consider a possible product to adopt for the remediation and basic skills classes over this year and have planned for one more before the end of the semester. Technology is changing rapidly! The math department is very aware of much of what is available, but will continue to search out new products, programs and apps that my support students success.

**Partnerships:** The math department is part of a groups of educators brought together by the STEM department which includes faculty from both Valley College and CSUSB. The faculty comes from all the departments included in the STEM majors. The groups met for the first time this semester and the conversations will continue as we work collegially to improve transfer rates from Valley to CSUSB and other area colleges in the STEM majors.

The math department participated in the AB86 workshops as well as with our dean to identify the role that Valley College will play in the administration of AB86. The workshops included community leaders, and representatives from San Bernardino area adult education schools, high school educators and community college s.

*Campus Climate:* This year, the math, physics, geology, chemistry and geology departments met to discuss the scheduling of the 200 level courses in each of the disciplines for Fall 2015. Students in these majors will need to take required courses during the same semester with these various disciplines without conflicts which slows students' progress. We were able to work together and came to an agreement in how sections would be scheduled so that the students in these majors could complete their educational plan on time. It was agreed that the meetings would happen each semester as the schedules are developed for the math and sciences departments.

The math department works hand in hand with the STEM Pass Go director and counselors to support student learning. The math department supports and participates in the two experiences sponsored by the STEM PASS GO grant which are offered to both on campus and local high school students. Both the fall offering, Men in Mathematics, and the spring offering, Celebrating Women in Mathematics, explore all the fields that use math. The presentations are very much connected to many things that interest students and are always entertaining.

## **VI: Previous Does Not Meets Categories**

Listed below, from your most recent Program Efficacy document, are those areas which previously received "Does Not Meet." Address each area, by describing below how your program has remedied these deficiencies, and, if these areas have been discussed elsewhere in this current document, provide the section where these discussions can be located.

**Demographics:** The Math Department states that the demographic figures for their Department are "less than 5%, well within error margins" of the figures for SBVC with regard to gender and ethnicity. The concern is that the margin of error was not defined and there is no explanation given. The figures for the Department and the College are both head counts, where there is no margin of error. The ethnicity figures do not show much difference between Department and College, but with regard to gender, there is a discrepancy of 5%--the Department population is 60.9% female while the comparable figure for the College is 55.7%. This may not be a problem, but it seems like a sufficiently significant difference to warrant explanation. At least the Department should have said they are aware of the discrepancy, and are keeping an eye on it. Further explanation is recommended on this matter.

#### The analysis and explanations can be found in Section I (page 5).

**Trends:** The program did not identify major socio-economic trends that might affect employment opportunities in mathematics or the need for mathematical skills generally in the workforce. It seems pretty obvious that math is needed by many people and will continue to be, but the Department should be cognizant of such trends, and should have said something about them.

# The explanations regarding both internal and external trends can be found in Section IV (pages 14 and 15)

**Technology, Partnerships, Campus Climate:** The response to campus climate needs to be further explained. The response given was that the faculty have open door policies. In view of the fact that Math is a subject that many people have problems with, it would seem that the Department should be more proactive in developing campus events and programs dedicated to the proposition that Math is fun and important. For example, the initiatives described under Partnerships are the sort of thing it would be good to see at SBVC.

The explanations on campus climate can be found in Section V (page 17)