Program Review/Follow-up Transmittal

General Information

The attached report is (check one): ☒ Program Review (published every 4th year)

☐ Program Review Follow-up (submitted annually)

The report is submitted for the Academic Year (select one): 2009-10

The report contains information on the follow unit(s) (enter names of all units/programs:

Mathematics

Report Abstract:

The mathematics department continues to provide a wide range of courses for students who wish to transfer, for majors and for those getting an associates degree. FTES and enrollment has risen over the last program review. New courses have been added to address the new statewide degree requirement changes. Other curricular changes have been made including three new full-time faculty and a full-time MAC technician.

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Program Name: Mathematics
TOP Code: 1701
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Program Review and Analysis

Part I Outcomes

1. What are the Student Learning Outcomes (SLOs) and Institutional-Level Outcomes ("Core Four") of the program? List each along with descriptions of the appropriate indicators of program success (i.e., measures of outcomes). Include both quantitative and qualitative measures.

Outcome(s)	Qualitative Measure(s)	Quantitative Measure(s)
Solve a problem applying appropriate math concepts and ideas. The type of problem will depend on the following categories: 1) Students completing advanced math core courses. 2) Students meeting the minimum requirements to transfer, or 3) Students meeting the minimum requirements to graduate with an Associates Degree.	• The problem is neat, organized, and easy to read. • Variables are defined. • Understanding and application of appropriate math concepts was demonstrated. • There are no mistakes and a complete, correct, and thorough solution was written. • There is a conclusion with the appropriate units. (see Problem Solving Rubric)	Mean of the scores (on a five point scale) of selected students. Percent of selected students who are able to solve the problem satisfactorily. Percent of selected students who are able to solve the problem exceptionally.
Effectively communicate solution(s).		
Core Competency II.A. Analysis		
Core Competency II.B. Computation		
Core Competency II.D. Problem Solving		

***2.* The specific SCC Strategic Direction and Goal(s) supported by this program:**

Obj 1.1: Enhance attainment of educational goals by students

Obj 1.2: Improve basic skills attainment

Obj 1.3: Develop new and expand existing curricular offerings

Obj 1.4: Validation and improvement of student learning

Obj 2.4: Student retention and persistence

Part II Analysis

1. Identify and explain the trends in:

Enrollment— FTES increased by 17% since 2005/06. Total enrollment was up by 6.9% from 2005/06 through 2007/08 but then declined during 2008/09 by 12% from 2007/08.

Retention— During the period 2005/06 through 2008/09 the average retention for Fall & Spring varied from a high of 71% in 2007/08 to a low of 61% in 2008/09. The Summer

averages were 5-15% higher than the Fall/Spring averages. Retention is affected by many factors which are difficult to change. Material taught early in the semester is constantly referred to and expanded upon throughout the semester; thus, when students are absent for a period of time, it is very difficult to catch up and dropping becomes a preferred alternative.

Fill rate— During the period 2005/06 through 2008/09 the average fill rate for Fall/Spring varied between a high of 88% in 2008/09 and a low of 84% in 2005/06. The Summer figures were generally about the same to slightly lower than the Fall/Spring averages.

Other Factors— An average of 8 A.A. in mathematics degrees were awarded during the past four years.

The number of sections offered varied from a high of 332 in 2005/06 to a low of 278 in 2007/08. From 2005/06 to 2008/09 there was an overall 9% decrease in sections offered. The percentage change in the sections offered varied more widely than commensurate changes in enrollment. Providing students with the appropriate mix of classes to meet their math needs for transfer/graduation continues to be a challenge.

The reported enrollment data for Spring 2008/09 and the retention data for Summer/Fall 2008/09 were substantially lower than the previous three years.

Outcome Data— Since Program SLOs were only recently created, the outcomes specified in Part I have not been measured using the quantitative/qualitative measures noted. The department will begin this evaluation process during the Spring 2010 semester.

2. How do the above trends relate to the factors and outcomes identified during the last review?

a. FTES and enrollment continued to rise, in comparison to the last program review period, as the department has been able to expand course offerings with an increase in the number of full-time faculty.
b. Retention rates have changed little since the last Program Review.
c. The fill rate on average was 6% lower than the last Program Review.
d. The average number of A.A. degrees in mathematics for the past four years represents a 30% decrease in the average number of similar degrees awarded during the previous four-year period.

Part III Conclusions and Recommendations

1. What are the major accomplishments of the program during the past four years?

- Completed the necessary curriculum changes to implement the new California AA/AS mathematics graduation requirement.
- Developed alternative courses to satisfy the new AA/AS graduation requirement.
  - Math 114: Math for Health Occupations
  - Math 112: Algebraic Reasoning
  - Math 118: The Beauty of Mathematics
- Created courses to enhance the offerings of the math department.
  - Math 18: Exploring Math/Science Teaching
  - Math 198A: Probability & Statistics for Teachers
  - Math 320: Pre-Algebra

- Building 1500 remodel completed which created smart classrooms and improved the use of technology in the classroom.
- Hired three new full-time faculty members bringing the total full-time faculty to eighteen.
- Purchased a classroom set of laptop computers.
- Phased out Math 304 (self-paced arithmetic) and replaced it with Math 310 (lecture format plus one additional classroom hour) in order to provide a better transition for basic skills students to college level math work.
- Salaries were increased for student tutors in the Math Activities Center (MAC).
- The MAC began a series of tutoring sessions covering selected topics of interest to students.
- The annual MESC (Math Educators of Solano County) meeting was formally established to meet at Solano College thus improving the connections between Solano College and local high school math teachers.
- Developed web-based video guides to assist basic skills students with assessing their math skills.
- Created and taught a hybrid version of elementary algebra.
- Created and taught hybrid and online versions of intermediate algebra.
- The Vallejo Center became fully operational and mathematics is represented by two full-time faculty members and a full range of course offerings from college arithmetic to calculus.
- Continue to experiment with commercial software (ALEKS) in several face-to-face arithmetic sections. The Math Basic Skills position was filled. This person will coordinate the writing of a Math Basic Skills Plan which is an essential first-step toward improving the success rate of basic skills students.
- The vacant position in the MAC was filled.

2. Based on the analysis above, are there any changes needed in order to meet program goals or to improve program effectiveness?

- Curriculum reviews every four years do not adequately address the needs of Solano College students. The math department should establish a procedure for evaluating and acting upon recommendations to curriculum changes in a timelier manner.
- Course Coordinators should be reestablished. These coordinators are an important link with the adjunct faculty to insure that course instruction per the Section K is being properly accomplished.
- More discussion is needed on how to best implement the State-wide requirements as they relate to TBA (To Be Announced) hours.