

**SJSU Annual Program Assessment Form**  
**Academic Year 2013-2014**

*Electronic copy of report is due June 1, 2014. Send to Undergraduate Studies  
(academicassessment@sjsu.edu),*

Department: **Mathematics & Statistics**

Program: BA Math, BA Teacher Prep, BS Applied Math, MA/MS Math & MS Statistics

College: **Science**

Website: <http://www.sjsu.edu/math/>

X Check here if your website addresses the University Learning Goals.

<http://www.sjsu.edu/math/assessment/index.html>

Program Accreditation (if any): None

Contact Person and Email: Bem Cayco (bem.cayco@sjsu.edu)

Date of Report: March 30, 2014

**Part A**

**1. List of Program Learning Outcomes (PLOs)**

BA Mathematics (<http://www.sjsu.edu/math/assessment/ba-plo/>)

BS Mathematics (<http://www.sjsu.edu/math/assessment/bs-plo/>)

MA/MS Mathematics (<http://www.sjsu.edu/math/assessment/ma-ms-math-ulg-plo-map/>)

MS Statistics (<http://www.sjsu.edu/math/assessment/ms-statistics-plo/>)

**2. Map of PLOs to University Learning Goals (ULGs)**

BA Mathematics (<http://www.sjsu.edu/math/assessment/ba-ulg-plo-map/>)

BS Mathematics (<http://www.sjsu.edu/math/assessment/bs-ulg-plo-map/>)

MA/MS Mathematics (<http://www.sjsu.edu/math/assessment/ma-ms-math-ulg-plo-map/>)

MS Statistics (<http://www.sjsu.edu/math/assessment/ms-stat-ulg-plo-map/>)

**3. Alignment – Matrix of PLOs to Courses**

<http://www.sjsu.edu/math/assessment/course-map/>

**4. Planning – Assessment Schedule**

BA Mathematics (<http://www.sjsu.edu/math/assessment/ba-assessment-schedule/>)

BS Mathematics (<http://www.sjsu.edu/math/assessment/bs-assessment-schedule/>)

MA/MS Mathematics (<http://www.sjsu.edu/math/assessment/ma-ms-math-assessment-schedule/>)

MS Statistics (<http://www.sjsu.edu/math/assessment/ms-stats-assessment-schedule/>)

**5. Student Experience**

All department assessment information including reports are listed on the Mathematics Department website. Greensheets also list PLOs that are covered by the individual courses.

**Part B**

<The following items 6-9 will be provided by the IEA office by March 1 every year. The departments are welcome to obtain the data on their own, and/or to report other relevant data for their particular programs if deemed important.>

**6. Graduation Rates for Total, Non URM and URM Students by Program**  
 Note: URM = African-American, Hispanic, and American-Indians; Non-URM = White and Asian/Pacific Islander; Other = Other and Foreign

Mathematics							
Academic Programs		First-time Freshmen: 6 Year Graduation Rates		New UG Transfers: 3 Year Graduation Rates		Grads : 3 Year Graduation Rates	
		Fall 2007 Cohort		Fall 2010 Cohort		Fall 2010 Cohort	
		Entering	% Grad	Entering	% Grad	Entering	% Grad
Mathematics	<b>Total</b>	<b>25</b>	<b>52.0%</b>	<b>12</b>	<b>50.0%</b>	<b>11</b>	<b>18.2%</b>
	URM	5	20.0%	1	0.0%	1	0.0%
	Non-URM	13	53.8%	2	50.0%	7	0.0%
	Other	7	71.4%	9	55.6%	3	66.7%

**7. Headcount of Program Majors and New Students by Programs and Degree**  
 Note: 1st Fr. = First-time Freshmen; Transf = Transfer Students; UGs = Undergraduate Students; Creds = Credential Students; Grads = Graduate Students

Mathematics											
Mathematics	Degree	Fall 2013									
		New Students				Cont. Students			Total		
		1st Fr.	UG Transf	New Creds	1st Grads	UGs	Creds	Grads	UGs	Creds	Grads
	<b>Total</b>	<b>30</b>	<b>25</b>	<b>0</b>	<b>39</b>	<b>119</b>	<b>0</b>	<b>48</b>	<b>174</b>	<b>0</b>	<b>87</b>
	BA	14	14	0	0	68	0	0	96	0	0
	BS	16	11	0	0	51	0	0	78	0	0
	MA	0	0	0	3	0	0	7	0	0	10
	MS	0	0	0	36	0	0	41	0	0	77

**8. SFR (Exhibit 3) and Average Headcount per Section (Exhibit 2) by Course Prefix**

MATH - Mathematics				
Course Prefix	Course Level	Fall 2013		
		Student to Faculty Ratio (SFR)	Average Headcount per Section	
		<b>Total</b>	<b>30.0</b>	<b>33.2</b>
		Lower Division	32.2	35.8
		Upper Division	26.6	30.5
	Graduate Division	9.0	7.4	

**9. Percentage of Full-time Equivalent Faculty (FTEF) for tenured/tenure-track instructional faculty by Department**

Mathematics				
Mathematics	% Tenured/Prob	Fall 2013		
		Tenured	Temp Lecturer	Probationary
	61.8%	25.533	16.816	1.667

**Part C**

**6. Closing the Loop/Recommended Actions**

This year the Mathematics Department has undergone a change in Department Chair. In this process numerous assessment activities have been completed which began last spring. This year we rewrote/edited the PLO's for all of our undergraduate and graduate programs, adjusted the assessment schedules, and course maps accordingly. Additionally, we mapped the University Learning Goals to our new PLO's for undergraduate and graduate programs. Since all of this adjustment was taking place we decide to not assess a new PLO given all of the changes.

## Large Lecture

In summer 2013, we were informed that an additional 500 Engineering students were going to coming to SJSU in the Fall. It was also at this time that we were informed of impending budget cuts. Due to budgetary constraints ( a large deficit, \$500k for 2013-2014), large lectures were introduced to meet the mandate to “stay within our budget”.

	Enrollment Data			
	Fall 12	Fall 13	Spring 13	Spring 14
Total number of courses	225	232	203	191
Total FTES	1361.8	1486.6	1052.7	1127.5
Total FTEF	48.8	51.9	43	37.6
Student Faculty Ratio	27.9	28.6	24.5	30

Only a few classes were enlarged in the Fall since the schedule was already set. However, we introduced more large lectures in the Spring. The increase in the Student Faculty Ratio from Spring 13 to Spring 14 in an indication of the changes we made. (Note that our Fall schedule is and has been larger than the Spring schedule. )

With much protest from the faculty, the Chair, Bem Cayco, offered a few large classes as an experiment. She have surveyed the faculty of these large lectures and asked for problem areas and am now looking for solutions. Chair Cayco has contacted Prof. Amy Strage, the AVP for faculty Dev., to set up training for large lectures. We are now in the process of applying for a grant through the Chancellor’s Course Redesign with Technology Program. If the grant proposal is not funded, we will continue to search, develop and or design training for large lectures. At the very least, we hope to compile some proven practices that are suitable for our courses.

## Credential Program

We are trying to increase the declining numbers of students in the single subject math credential program. We started by offering better advising to our majors who are in our BA for Teacher Prep program. One of the new advisors is a Math Educator who typically advises in the Credential Program and is able to answer all questions and concerns the students have about the credentialing process. We also continue to hold a career day for future teachers and invite alumni who are now teaching in local high schools and community colleges. We recently started offering our future teachers teaching positions in our developmental math program and some of our senior Prep for teaching students are working as lab instructors for our developmental math courses. We have started hiring credential students to teach Math 3A/3B. Under the supervision of a faculty supervisor, these students have to prepare their syllabus and develop and deliver their lectures in these courses. Not only do the students enjoy teaching these courses, but this opportunity provides them with an invaluable educational experience. We have already seen an increase in the number of our majors who decide to finish their credential training at SJSU.

### **Course Offerings**

We try to strategically offer upper division major and graduate courses so that our students are able to graduate in a reasonable amount of time and so that our class sizes meet the minimum requirements set by the university (10 for a graduate class and 15 for an undergraduate class). We are in the process of rethinking our graduate programs in Mathematics which would hopefully result in a more coherent and comprehensive program. Many of our students take more than two years to finish our program. We are trying to find ways to improve our program so that our students can finish in a timely manner.

New courses are also in development to satisfy the needs and interests of our students. Our more recent topics and new courses are Stochastic Processes, Networks, Financial Mathematics, Bayesian Statistics.

### **GE Program – area B4**

Math 8, College Algebra, is a preparatory course for Math 71, Business Calculus, yet about 60% of the students in that class are not Business (or STEM) majors. Many of the students are taking Math 8 to satisfy their area B4 requirement. We are developing area B4 courses that would be more fun and more interesting to the students. At the moment, we are looking into a course that teaches the Mathematics of Games. Another course in consideration would teach Statistics through baseball.

### **Service Courses**

We are a large service department and we are always open to discussion with the departments we serve. We meet with representatives of the Business College 1-2 times a year to discuss the curriculum in our Business calculus course. At the request of the Physics department, we are also currently discussing the possibility of offering a 2-unit trig course for the students who are unprepared to take Physics 2A.

#### **7. Assessment Data**

Please see item #6.

#### **8. Analysis**

Please see item #6.

#### **9. Proposed changes and goals (if any)**

In the coming AY year 2014-2015 the Mathematics department intends to evaluate the data collection from the current efforts in the following areas: large lectures, increasing advising for our undergraduate BA for Teacher Prep program, and providing opportunities for our credential students to teach within our department, continue offer courses so our students can graduate in a timely manner and also offer new courses which are of interest and need for our future graduates.

Future assessment reports will discuss the following:

- specific areas of concern regarding large lectures and possible solutions to the issues. We also hope to compile some proven practices that are suitable for our courses in future reports.
- the results of having faculty who teach in the credential program advising for our undergraduate BA for Teacher Prep program
- an update on course offerings so our students can graduate in a timely manner
- any new courses we will be offering