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Program Review - 2015-2016

Mathematics

Module: Division Purpose

Question: Describe the purpose of the Discipline/Program/Service.

Answer: To prepare students in math so they can transfer to four year colleges. To prepare students in math to earn an AA degree To assist students in developing quantitative literacy skills necessary for work and daily life. The mathematics department recently hired three full time mathematics instructors, and seeks to hire two more for Fall 2016. This recent hiring should raise the quality of mathematics instruction on three fronts: foundation skills, non-STEM, and STEM. WEST mathematics success and retention rates across the board hopefully will rise. With more students moving more quickly through the Algebra sequence, becoming more successful at the transfer level mathematics courses. Ultimately WEST will see an increase in TRANSFER by both non-STEM AND STEMstudents.

Question: Describe how the stated purpose aligns with the college mission statement.

Answer: The stated purposes of the Math Division align with: A West education enriches students with the knowledge and skills needed to earn certificates and degrees, to transfer, to build careers, and to pursue life-long learning. Specifically: To prepare students in math so they can transfer to four year colleges. To prepare students in math to earn an AA degree To assist students in developing quantitative literacy skills necessary for work and daily life.

Module: Enrollment Trends

Question: Describe the trends in Enrollment and FTES. Given the data, what are the implications for your division? If relevant, discuss each discipline separately.

Answer: In Fall 2010 there were 2947 students enrolled in math, rising to 3200 Fall 2011, declining a bit to 2820 in Fall 2012, increasing to 2983 in Fall 2013, and again increasing to 3120 in Fall 2014. This is a 6% INCREASE over these 4 years. Fall 2010 FTES were 465, Fall 2011 FTES 512, Fall 2102 FTES 454, Fall 2013 FTES 468, and finally, Fall 2014 had 475 FTES. This represents a modest INCREASE of 2% over the past 4 years.

During the budget crisis, the math department cut back on many of the sections offered, and we saw class sizes generally increase. Now that things have settled a bit, the math department has reduced class size down to what the rest of the campus typically has. (We went from cap of 60 to cap of 49 for most classes.)

Compared to College Totals, which saw a 4% DECREASE in enrollment and a 1% DECREASE in FTES, over the past 4 years, the math department is doing exceptionally well.

Question: Given the data, describe the trend in section counts and average class size.

Answer: The mathematics section count in Fall 2010 was 69; Fall 2011 was 64, Fall 2012 was 60, Fall 2013 was 69, but Fall 2014 saw a jump up to 76. This recent increase was due to the recovery of the budget crisis impact on community college course offerings. Note that this is also due to the fact that more 4-unit Math 123

sections replaced 5-unit Math 117/118 and 127/128 sections, probably maintaining the total units taught per semester, thus increasing the section count.

In Fall 2010, we offered 5 section ofMath 227 Statistics, now our main transfer level math course. In Fall 2014, this had risen to 7 sections, representing a 40% INCREASE in the offerings of this class. I anticipate that this trend will continue into the immediate future.

The average class size (counting only classroom courses, not online or hybrid) was approximately 44 in Fall10, 50 (!) in Fall11, 49 in Fall12, 45 in Fall 2013, dropping in Fall 2014 to 42. This represents a 6% DECREASE over this 4 year time frame. This drop starting in Fall 2013 was due primarily to altering the cap at the beginning of the semester to 49 in most math classes. Previously this had been 60. The math department moved to make sure that class size is capped reasonably, consistent with the rest of the campus, and monitored throughout the semester. We capped most math classes at 49, in order to increase student success in the future. Along with that, we will begin scheduling classes into the somewhat smaller classrooms in MSA, and capping these classes to the capacity of the classroom. Several rooms on MSA 1 are currently underused, but we are using them more this semester than in semesters past. We intend to continue to use these rooms more efficiently in the future.

Generally speaking, almost every mathclass at the beginning of the semester is full, and usually they fill well before the first day of class. I saw wait-lists at the beginning of this semester containing up to 50(!) students.

In particular, every Math 227 STATISTICS class that we offeredthis FALL 2015 was full (49 students) well before we started the semester, and all had wait-lists. My wait-list (section 1496 at 11:10am daily) contained over 25 students, of which I was able to accommodate 10. At the beginning of this semester, we were offering 7 Math 227 classes. The enrollment of all 7 was at 49 on day one of the semester.

Module: Students and Student Success

Question: Based on the demographic trends in enrollment, what are the implications for your Discipline/Program/Service?

Answer: Looking at gender, age, and ethnic groups distributions for math students from Fall 2010 to Fall 2014, there are no statistically significant changes. Fall 2014, saw a slight up-tick in the % of MALE students, now at 46% (compared to College Total 43%)

Unfortunately, African American/Black population went from 42% of total math enrollment in Fall 2010 down to 30% of total math enrollment in Fall2014 (42% to 34% Campus Total), while the Hispanic/Latino population did the opposite. Hispanic/Latino population went from 39% of total enrollment in Fall2010 up to 52% of total enrollment in Fall2014 (31% to 43% Campus Total). So this trend is not unique to math. It appears that African American/Black students are being replaced with Hispanic/Latino students college-wide. Previously, the Math Dept considered offering a scholarship for a Math MALE African American student. Based on the surge of the Hispanic/Latino population, it would be fitting to offer a similar scholarship for a Hispanic/Latino math student as well. Generally however, the implications for the math department are to continue to serve and encourage all groups to meet their highest potentials.

Question: Given the data, describe the trends in Success Rates and Retention Rates. What are the implications for the Discipline/Program/Service?

Answer: Our retention rate in math went from 68% in Fall 2010 to 71% in Fall2011, to 69% in Fall 2012, to 72% in Fall 2013, and to 70% in Fall2014. Pretty consistent.
Campus Totals went from 84% to 82% during the same time frame.

Our success rate was 42% in Fall2010, 43% in Fall2011, 40% in Fall2012, 42% in Fall2013, and 42% in Fall2014. Again, incredibly consistent. Campus Totals went from 62% to 63% during the same time frame.

With the recent addition of three very good full time math instructors, along with several new adjuncts, and possibly the addition of two more FT instructors for the Fall 2016 term, let's see if the math department can break 50% "success" in the near future. Notice that these numbers don't reflect the typical math class size, which is usually 50-60 to start any semester. The math department has reduced the class cap size from 60 down to 49, aligning with the rest of the campus. This could help improve success rates. We would also like

to see a further reduction for the high risk classes, such as Math 105/112, replacing them with the 5-unit Math 110 class. The cap on these lower end sections should be no more than 40. Much research has been done on class size and student success at the college level. For example, see http://www.insidehighered.com/views/2007/12/06/barwick

Question: Compare the successful course completion rates of the Discipline(s) in the Division over time and with the college average.
If the rate of any of the Discipline(s) is lower that the college average, what factors contribute to the low rate (s)? What strategies, current or planned, address this?
If the rate is higher than the college average, what factors contribute to the higher rates?

Answer: Successful Course Completion Rate = SCCR

Year	2010	2011	2012	2013	2014
Campus	63%	64%	64%	62%	63%
Math	42%	43%	40%	42%	42%

First of all,the only comparison that makes any sense is one that compares mathematics to a similar discipline, such as science. I can't even begin to compare mathematics with P.E., sociology, allied health, etc. To be successful in mathematics, the student needs to be quite familiar with the prerequisite material, be well-disciplined, have effective and efficient study habits, and show a interest in actually learning the material. If you can guarantee that a student that has not passed the prerequisite course will be SWEPT out of the subsequent course BEFORE that class starts, I will guarantee an increase in student success from the WLAC math department. The notion of "Student Success" cannot coexist with the idea that a student has a "RIGHT TO FAIL". Rigorous courses, such as mathematics or physics, have the power to TRANSFORM the student. Success comes from this transformation, and nothing else. I cannot agree that success simply means - student earned a C or higher.

With the recent addition of three very good full time math instructors, along with several new adjuncts, and possibly the addition of two more FT instructors for the Fall 2016 term, let's say - let these new instructors teach. Time will tell us more about success of the mathematics department.

In the short term, let's see if the math department can break 50% "success" in the near future. Notice that these numbers don't reflect the typical math class size, which is usually 50-60 to start any semester.

Question: Compare the equity gap in the successful course completion rate(s) in the Discipline(s) over time and with the equity gap of the college over-all.
If the equity gap is higher than the college average, what factors contribute to the large gap? What strategies, current or planned, will address this?
If the equity gap is lower, what factors contribute to the smaller gap?

Answer:

Year	2010	2011	2012	2013	2014
Campus Eq. GAP	22.8%	23.6%	23.5%	23.0%	21.7%
Eq. GAP Math	18%	24%	23%	22%	28%

The Math Department appearsto be consistent with the college-wide numbers regarding EQUITY GAP. (Apparent differences can be attributed to random fluctuations.)

Question: Given the data, describe the trends in Degrees and Certificates awarded. What are the implications for your Discipline/Program/Service?
What does the Division do to encourage Certificate and Degree completion?

Answer: Looks like the Math Dept. awarded one math degree in 2011-12, two in 2012-13, and two in 2013-14, along with our first "mathematics for transfer". That's actually quite a jump for us. With more concentration on STEM courses, along with more cooperation in scheduling these courses with the Science Department, we should see these numbers also increase in the future. Our Calculus sequence courses are more full than any time recently. We are seeing an influx of more local students taking our Calculus sequence (rather than at SMC?), along with more CSU students, and international students.

Though many students take our Math 260+ courses, many of which could be math majors, but they simply have not declared themselves as such. We believe that we currently we have between 15 and 20 math

majors (recent survey data) ! This is a dramatic increase over years past. With correct emphasis on STEM programs and students, this number should increase dramatically in the coming years.

Though the number of students finishing WEST with an AA degree in Math has been small, mathematics certainly plays a huge role in any studen▼ s desire to graduate with an AA degree or transfer. Finishing Intermediate Algebra is a basic requirement for an AA degree. So count the number of students each year that complete an AA degree, and each and every one of those students have taken at least one WEST math class along the way.

Similarly, count all of our transfer students each year. Those students have all taken a transfer-level 200 +level math course here at WEST. The vast majority take Math 227 Statistics. This semester, Math 227 alone served approximately 350 students, and next semester approximately the same. Tha▼ s over 700 students that the Math Department, in particular, Math 227 is trying to make transfer-ready at the end of the current school year. This does not include the other Math 200+ courses, such as Calculus. Now granted, not this many students will graduate and transfer at the end of the 2015-16 school year, but the Math Department is certainly doing their part trying to get students to transfer. Clearly, if we hire a capable new Math 227 Statistics instructor, WES✶ s transfer rate will increase.

In my Math 227 class this semester, I have a TRANSFER HONORS student.I would assume that many math teachers allow their students to participate in the TRANSFER HONORS program.

Some historical data: 137 students transferred into the CSU system during Fall 2013 semester. UC transfer numbers are unavailable, as of today. It appears that for school year 2011-2012, WEST transferred a total of 144 students to private institutions, 60 going to in-state private school, 80 going to out-of-state. (Transfer Committee Sept 17, 2013, ARCC data)

The intermediate algebra requirement for graduation went into effect in 2009, causing a 20% decrease in the overall number of degrees earned. The decrease in AA degrees is very much affected by this math requirement, but we expect the numbers to start rising again. Many years ago, the Math Department, in preparation for this new requirement, created the two semester version of intermediate algebra (Math 127/128) in order to assist more students in fulfilling this tough requirement. Today, Math 127/128 has been essentially phased out. Most recently, the Math Department has created the 3-semester sequence Math 123ABC to allow students to move more quickly through the algebra sequence. This sequence began Spring 2013. Fall 2015 we are offering multiple sections of each Math 123A, B and C.

Module: Staffing Trends

Question: Describe the trends in FTEF. What are the implications for your program?

Answer: For classroom instruction alone, the FTEF for Fall2010 was 17.40, Fall2011 was 16.07, Fall 2012 15.87, Fall 2013 was 17.27, and Fall 2014 was 19.25.

Comparing FTEF for Full Time instructors versus Adjunct, we saw greater FTEF for adjuncts over regular instructors consistently. Fall2012 saw a widest gap, with 6.20 Regular versus 9.60 Adjunct. The implications for our program is that we are far from the 75%/25% state goal. We've recently hired three full-time instructors. This Fall 2015 semester, we have78 sections, 30 (38%) taught by full-time instructors exclusively, 44 (56%) are taught by adjuncts and 4 sections (5%) are taught by full-time instructors teaching an overload. One full time instructor resigned after the Spring 2014 semester, but was replaced quickly with another full-time instructor. This continued imbalance justifies the hiring of new instructors in future years. We will be seeking to hire two new full-time instructors for Fall 2016.

Question: Are staffing levels adequate to fulfill the purpose of the Discipline/Program/Service? Explain.

Answer: No. Our purpose is to get students prepared to transfer, to earn AA degrees, and to learn life skills for daily living. To succeed we need smaller classes, more sections of classes, and more staff to teach these classes. Though we have hired three full-time instructors recently, I anticipate that we need to hire at least one full-time tenure-track math instructor each year for the next four years to even come close to satisfying

our ever expanding needs. However, if we hire two during the next hiring process, we will be well on our way.

We currently offer seven sections of Math 227 Statistics. In previous semesters, Math 227 was ONLY TAUGHT BY ONE FULL-TIME INSTRUCTOR. In the future, we need to hire a new full-time mathematics instructor with the ability to teach statistics. I also anticipate the number of sections offered of Math 227 to increase over time, as a response to our increasing demand to offer this popular transfer level course.

Since a 1-semester STAT prep algebra class has been given the nod by the CSUs and the UC, West needs to consider piloting such a class. I envision something similar to what Mission is doing (not Pierce's STATWAY, however).

Based on information I heard at the Chancello❒ s Statistics Institute (CSI) on Friday, October 23 and Saturday, October 24 at College of the Canyons, the number of sections of transfer math (Math 227 Statistics at WEST - in particular) should at least double in the next 5 years - to meet the growing demand. This should justify the need of the WEST math department to hire new FT instructors, at least one having experience/desire to teach Math 227.

The introduction of the Bachelo❒ s in Dental Hygiene program at WEST will impact several other departments, with mathematics being near the top of the list. A requirement for this program would be Math in particular Math 227 Statistics, increasing the need for Math 227 even further. Today we offer 7 sections of Math 227, in 2020 15-20 sections?

Question: elease/reassigned time.Describe the Reassigned and Release time assigned to faculty in the division. Include the faculty name, amount of release/reassigned time, length of time the assignment will last (one semester, one year, if it's renewable, etc.), and the purpose of the r

Answer: Matthew Robertson - MATH Chair - 0.6 reassign
Matthew Robertson - WEC Chair - 0.2 release

Module: Functions and Services, Academic Divisions

Question: List the functions and services provided by the Office / Program / Service.

Answer: The math department offers a complete sequence of classes needed with options in foundation skills math to meet students' needs. For example, PreAlgebra is offered as a 3-unit Math 112 class, or a more rigorous 5-unit Math 110 class. We offer the traditional Math 115 - Math 125 Algebra sequence, and have essentially phased out the Math 117/118 - Math 127/128 options - generally more successful - but too slow. Starting last Spring 2013 semester, students can take Math 123ABC, a 3-semester, 4-unit each option. The math department anticipates greater student success with this option. We offer extensive office hours to assist students, and full-time faculty often provide extra assistance to their students in the form of extra study sessions. Some faculty offer special study sessions on weekends.

The Math Chair personally holds Study Sessions on the Friday before an important exam. The math faculty believes in Student Success. Professor Manushak Movsisyan offers sessions in the library and opens her office hours (in the library) to all math students who need help. I believe Professor William Bucher does likewise. The math department appreciates the funding awarded to the Learning Center for a math lab during last year's Program Review.

The math departmentwas one of the first departments to create the AA-T in Math for students interested in transferring with a math based AA degree. The math department coordinates with Learning Skills to offer computer programs to supplement class work.

The math department pioneered a rental program using used/previous edition texts at a cost to students of about $7 per semester; the program is now run by the Bookstore. Math faculty frequently provide academic advisement (NOT counseling) to students, and several are involved in the STEM mentoring program.

Question:	What are the emerging trends in technology that affect the program?
Answer:	It was pointed out that this is the year of technology and we need to make sure we are asking for technology for our department. Many things were discussed such as tablets, Maple software, Reduce (free), Also site licenses for other programs. We are interested in acquiring tow different types of Math Labs 1) housing computer work-stations, something like CE 226, and 2) for primarily mathematics tutoring, outside classroom SI instruction, larger class review sessions, etc. This could also have manipulatives, dedicated tutors, or instructors office hours. The "computer Lab could be used as a classroom setting - for example, for the Math 105/112 compressed classroom, using online HW through XYZ, or for Math 227 classes, where each workstation has a statistical software package, such as Minitab, loaded onto the computer. We could create a 1-unit LAB component that goes with Math 227, where the students actually work with real-life data.

Question:	Describe the technological advances that have been implemented to improve and streamline the Discipline/ Program/Service.
Answer:	44 of our 78 sections (56%) this semester are held in our math/science building (MSA). All of these rooms have computer projection and are internet equipped. Some teachers are using pod casting and smart classrooms in their presentations. Mr. Feiner and Mr. Harjuno have created and posted videos on YouTube. Other instructors are referring students to YouTube and other online resources.

Module: Survey Results

Question:	Describe the results of relevant surveys (point-of-service surveys, student surveys, staff surveys).
Answer:	Most of our instructors regularly receive highly positive feedback via the student evaluation process (surveys). In the event that they do not, this department chair will follow up with the instructor during the post-evaluation process. I have requested that administrative evaluations be performed on two adjunct instructors, due to poor evaluations, but to date, no administrative evaluation has been completed. The Math textbook rental program (originally in the Math Dept, now in the bookstore) remains extremely popular. Previously, the math department chair has used student surveys in order to get quick feedback from our math students. For example, in order to get a sense of haw many math majors we currently serve, I surveyed all students in the Math 260 and above courses (Math 260, 261, 262, and 263). Many responded, some even indicated they were interested in the Transfer Mathematics Degree, and wondered how to go about it! Generally, if the math department chair has an idea about a new course offering, he will email the faculty to get their input on the idea before he puts it into practice. Recently, we emailed FT math faculty regarding alterations to the Winter 2016/Spring 2016 math class offerings. The discussion was lively, to say the least.
Question:	Discuss the implications of the survey results for the program.
Answer:	Most of our instructors regularly receive highly positive feedback via the student evaluation process (surveys). In the event that they do not, this department chair will follow up with the instructor during the post-evaluation process. I have requested that administrative evaluations be performed on two adjunct instructors, due to poor evaluations. Generally, if we were getting negative feed back, we would look for changes to improve. As of this point, most students seem happy with their instructors. When individual complaints arise, the Division Chair is

usually able to defuse them and, where appropriate, to negotiate remedies. The math department is very interested in what our students have to say.

We have several recent FELI graduates in the mathdepartment, most recently Manushak Movsisyan.

The math department regularly surveys students. Recently, in an attempt to understand how the Math 105 Summer 2015 session liked the new XYZ online HW system.

Module: Curriculum

Question:	l assistance that may be needed to resolve the problem.Missing course outlines of record: Refer to the report of courses with missing CORs, which is posted at the link in the Instructions section. Please describe the steps the division has taken or plans to take to correct the problem. Describe the additiona
Answer:	Previously, there was a problem with the Math 123B COR, but this has been resolved. Many of the CORs probably need updating. I'll divide up the ones that are the oldest and have those done first. Last year, I finished updating the Math 227 COR to includetechnology and sample gathering techniques, as suggested by the UCs. The updated Math 227 COR should now be in place, allowing our Math 227 Statistics to be articulated anywhere. Dr. Alwash and Thomas Harjuno have assisted on updates to the CORs for Math 263 and 275. I also recently made some minor modifications (additions) to the Math 236 and 270 CORs, to better align with the requirements of the Transfer Model. Dr. Blustein has recently updated several CORs to include updated SLO assessments.
Question:	Out-of-date course outlines of record: Refer to the report of courses with CORs that are out-of-date. Please describe the steps the division has taken or plans to take to correct the problem.
Answer:	Previously, there was an problem with the Math 123B COR, but this has been resolved. Many of the CORs probably need updating. I'll divide up the ones that are the oldest and have those done first. Last year, I finished updating the Math 227 COR to include technology and sample gathering techniques, as suggested by the UCs. The updated Math 227 COR should now be in place, allowing our Math 227 Statistics to be articulated anywhere. Dr. Alwash and Thomas Harjuno have assisted on updates to the CORs for Math 263 and 275. I also recently made some minor modifications (additions) to the Math 236 and 270 CORs, to better align with the requirements of the Transfer Model. Dr. Blustein has recently updated several CORs to include updated SLO assessments.
Question:	How does the department determine that classes are taught consistently with the official course outline of record?
Answer:	Generally speaking, the instructor aligns syllabi with COR. Common assessments are used in nearly all courses below the transfer level. These are mandatory final exams in Elementary and Intermediate Algebra. Students as well as instructors are apprised via sample exams of the course scope and objectives. On the rare occasions when an instructor may not be covering the entire course, students let us know and we attempt to intervene in a timely manner. Analysis of the results of the common assessments occasionally reveals discrepancies, and in those cases the instructors are counseled. We have developed course SLOs for all math classes taught. All math classes taught are sequenced in the SLO 4-semeter cycle. This semester, the Math Department now has Dr.Jeremy Jankans as the SLO Coordinator for math. This will help as we move to implement TracDat.
Question:	Are required courses scheduled in appropriate sequence to permit students to complete the program in the prescribed program length? If yes, describe the rationale upon which the sequence is based. If no, what is the plan for alleviating these problems?Explain.

Answer: Yes. Prerequisites have been validated and are enforced through the computer system (supposedly) for all math classes except the entry-level arithmetic class (Math 105). New students who follow the recommended matriculation procedures (SS&SP) take the assessment test when they first come to the college. Those who demonstrate competence at the level of the CAHSEE (Elementary Algebra) can complete their math classes within one academic year if they are in a non-STEM program (i.e., Intermediate Algebra Math 125 followed by Statistics Math 227). However, most incoming students assess into remedial (developmental, foundational) math classes and may require anywhere from one semester to two years of successful classwork prior to attaining this level. The Division has introduced alternative pathways in an attempt to reduce the time it takes students to complete their Algebra sequence. Students following a STEM program who assess into Pre-Calculus can generally complete the STEM math sequence within two years.

Question: How does your division assure the relevance, appropriateness and currency of each of its programs? Cite each program (degree/certificate program or meaningful grouping of courses) and the student data and environmental scan data that support the assertions.

Answer: Only needing to cite enrollment numbers, "In Fall 2010 there were 2947 students enrolled in math, rising to 3200 Fall 2011, declining a bit to 2820 in Fall 2012, increasing to 2983 in Fall 2013, and again increasing to 3120 in Fall 2014. This is a 6% INCREASE over these 4 years. Fall 2010 FTES were 465, Fall 2011 FTES 512, Fall 2102 FTES 454, Fall 2013 FTES 468, and finally, Fall 2014 had 475 FTES. This represents a modest INCREASE of 2% over the past 4 years.

During the budget crisis, the math department cut back on many of the sections offered, and we saw class sizes generally increase. Now that things have settled a bit, the math department has reduced class size down to what the rest of the campus typically has. (We went from cap of 60 to cap of 49for most classes.)

Compared to College Totals, which saw a 4% DECREASE in enrollment and a 1% DECREASE in FTES, over the past 4 years, the math department is doing exceptionally well."

Mathematics is a gatekeeper course, critical to student success.Math is needed for transfer, STEM, etc.

Question: ybrid classes?
How can the outreach, online and hybrid classes be improved?What outreach, online and hybrid classes has your department offered?
How many courses are offered via Distance Education, and for how many has a COR addendum for DE been prepared?
What are the benefits and problems associated with outreach, online and h

Answer: We offer elementary algebra and intermediate algebra online (with on-campus exams). Hybrid we offer college algebra and statistics. Benefits - they can work at home and learn at home. Problems - many need class room hands on instruction. Many lack the discipline and background necessary for successful completion of online courses.

Last Fall (2014), we introduced a new ACT Math 125 hybrid class, creating two online/hybrid Math 125 classes taught that semester, something that quite a few members of the Math Department were uncomfortable with.

Last year, the math chair decided to eliminate the online/hybrid version of Math 227, due to historically low success rates. Other sections of Math 227 start with around 50 active students, and end in the thirtiesor forties. Historically, I have seen the online/hybrid version of Math 227 start with 40 active students, and end in the teens. A different solution would be assigning a different instructor to teach the online/hybrid section of Math 227 Statistics.

This semester we teach a total of 3 online/hybrid sections in the math department (Math 115, 125, and 245).

Question: Describe any long term changes or additions to the curriculum that you are exploring, planning or developing.
Changes that you plan to initiate in the coming year should be reflected in the Planning Section.

Answer: The math department has decided to archive Math 100, the tutorial session. When we have run it recently (Summer and Winter) it has had very low enrollment. We have now fully integrated the Math 123 sequence as an option for students to get through the algebra sequence. We will be exploring the success of this new sequence.

This semester, we have completely phased out the Math 117/118 127/128 sequence, replacing them with the 3-semester Math 123 sequence.

We may explore additional options for studentsin the algebra sequence. Many districts have adopted a duel-track through intermediate Algebra: STEM vs non-STEM. El Camino College does this, with some success.

We are interested in introducing some 1-unit classes on special topics into the math curriculum. Bonnie Blustein is interested in developing a Word Problems class, which has already been introduced elsewhere in our district. Dr. Blustein has created the course, and it should be making its way through the ECD system.

Last year, Prof Jamie Jenson had the following idea, "It would be helpful to have a stipend of some kind to be able to hold "boot camps" (possibly a two week course) to get students ready for the coming semester, reviewing old material and making sure foundational skills are goodbefore entering a course like intermediate algebra." Prof. Jenson also suggests, "If we could have some type of workshops in the HLRC (run by faculty) that would help our students with certain topics (factoring, quadratic equations, fractions, etc) that would help get our success rates higher in those developmental classes (112, 115, etc)."

Since a 1-semester STAT prep algebra class has been given the nod by the CSUs and the UC, West needs to consider piloting such a class. I envision something similar to what Mission is doing (not Pierce's STATWAY, however).

Based on information I heard at the Chancello❒ s Statistics Institute (CSI) on Friday, October 23 and Saturday, October 24 at College of the Canyons, the number of sections of transfer math (Math 227 Statistics at WEST - in particular) should at least double in the next 5 years - to meet the growing demand. This should justify the need of the WEST math department to hire new FT instructors, at least one having experience/desire to teach Math 227.

The introduction of the Bachelo❒ s in Dental Hygiene program at WEST will impact several other departments, with mathematics being near the top of the list. A requirement for this program would be Math in particular Math 227 Statistics, increasing the need for Math 227 even further. Today we offer 7 sections of Math 227, in 2020 15-20 sections?

Question: List new or changed degrees and certificates that have been approved by the Curriculum Committee during the previous year, or are in the planning stages.

Program Name	Award Type	Curr Comm Action	Date of CC of Action	Type of CC Action
Mathematics	Transfer AS	Approve	modify CORs	Modification to Existing Program
Mathematics	AS Assoc of Science	Approve	modify CORs	Modification to Existing Program
Mathematics	Noncredit Certificate	Approve	POPP program	New Program

Module: Student Learning Outcomes

Question: Describe how course SLOs were assessed and how faculty were involved in the process in the prior year.

Answer: We have developed course SLOs for all math classes taught. All math classes taught are sequenced in the SLO 4-semester cycle. This semester, the Math Department now has Dr. Jeremy Jankans as the SLO

Coordinator for math. This will help as we move to implement TracDat.

For this semester, Dr. Jankans - has organized the following SLO course coordinators:

Math 105 SLO1&2 (Phase I) Coordinator: M Movsisyan
Math 110/112 SLO1&2(&3?) (Phase I) Coordinator: M Movsisyan/ T Harjuno

Math 115 SLO1&2(&3?) (Phase III) Coordinator: H Feiner / M Alwash
Math 125 SLO1&2(&3?) (Phase III) Coordinator: J Jenson + W. Bucher

Math 123A SLO1&2 (Phase IV) Coordinator: J Jankans
Math 123B SLO1&2 (Phase IV) Coordinator: B Blustein
Math 123C SLO1&2 (Phase II) Coordinator: B Blustein

Math 227 SLO1 (Phase IV), SLO2 (Phase III) Coordinator: M Robertson
Math 241 SLO1&2 (Phase IV) Coordinator: J Jankans
Math 245 SLO1&2 (Phase IV) Coordinator: P Arriola + M Robertson
Math 236 SLO1&2 (Phase III) Coordinator: V Swaminathan
Math 260 SLO1&2 (Phase III) Coordinator: V Swaminathan
Math 261 SLO1&2 (Phase II) Coordinator: J Jenson / M Alwash
Math 262 SLO1&2 (Phase II) Coordinator: V Swaminathan
Math 263 SLO1&2(&3?) (Phase III) Coordinator: T Harjuno

Math 270 SLO1&2 (Phase II) Coordinator: M Alwash
Math 275 SLO1&2 (Phase II) Coordinator: M Alwash

For SP 2015, the chair of the math dept organized the following SLO course coordinators (part of email sent to all FT math instructors):

SLO assessment for SPRING 2015 DUE WHEN GRADES ARE DUE.
Generally if you are the only FT instructor teaching the course you are the coordinator.

Math 105 SLO1&2 (Phase IV) Coordinator: M Movsisyan
Math 110/112 SLO1&2(&3?) (Phase IV) Coordinator: J Jankans

Math 115 SLO1&2(&3?) (Phase II) Coordinator: T Harjuno
Math 125 SLO1&2(&3?) (Phase II) Coordinator: J Jenson + W. Bucher

Math 123A SLO1&2 (Phase III) Coordinator: J Jankans
Math 123B SLO1&2 (Phase III) Coordinator: B Blustein
Math 123C SLO1&2 (Phase I) Coordinator: B Blustein

Math 227 SLO1 (Phase III), SLO2 (Phase II) Coordinator: M Robertson
Math 241 SLO1&2 (Phase III) Coordinator: H Feiner
Math 245 SLO1&2 (Phase III) Coordinator: P Arriola + M Robertson
Math 236 SLO1&2 (Phase II) Coordinator: V Swaminathan
Math 260 SLO1&2 (Phase III) Coordinator: W Bucher
Math 261 SLO1&2 (Phase I) Coordinator: J Jenson
Math 262 SLO1&2 (Phase I) Coordinator: V Swaminathan
Math 263 SLO1&2(&3?) (Phase II) Coordinator: T Harjuno
Math 270 SLO1&2(&3?) (Phase I) Coordinator: M Alwash
Math 275 SLO1&2(&3?) (Phase I) Coordinator: M Alwash

Phase II requires only ONE report submitted. The author should include the names of all instructors currently teaching the course, along with instructors that taught the course in Phase I.

Note that if you are the SLO course coordinator, you may want to serve on the Common Final committee.

If you are interested in helping with a course SLO assessment this semester, please contact me and the lead person above this week.

If you are an adjunct instructor teaching one of these courses, look for a communication from the lead instructor above or reach out to them for guidance.

Question: Based on course SLO assessments in the prior year, what changes to the course were implemented? List the changes to each course that were made based on SLO assessments.

Answer: Jeremy Jankans, SLO Math Coordinator, writes "For math 105, 110, 112, 123abc, and 125 we made changes to the final exams. We have started an accelerated math 105/112 class, being taught by Manushak Movsisyan. We are using a common Final for each class to ensure a more consistent class across all professors. For math 123a more focus on the concepts of number sense has been applied. For the transfer level classes, we are still in the process of assessing any changes that need to be made."

Math 105 committee has met to review and discuss results of SLO assessment. Expand this committee to include Math 110/112. To facilitate participation of adjuncts and ongoing communication, it would be helpful to have funds to compensate adjuncts and coordinator onhourly basis for this work. Historical data show higher success rates in Math 110 (5-unit pre-algebra) than in Math 112 (3-unit pre-algebra). For spring 2015, some 112 sections have been replaced with 110 sections. More research could investigate possible confounding variables such as student characteristics and/or instructors. Additional resources from Program 100 would make it possible to offer more 110 sections. We are in the process of replacing the 4-semester, 20-unit Math 117-118-127-128 with the 3-semester, 12-unit Math 123ABC. Most daytime sections have been switched to a 3 day/week schedule with 4th day set aside for office hours in the classroom. Two meetings were held in Spring 2014 with full-time and adjunct instructors to discuss possible enhancements of this new sequence. Another meeting is planned (through Tech Fair) for Fall 2014. Dropbox account and folder have been established to begin to create an indexed, easily usable file of worksheets and activities organized topically. SI tutors have been assigned to selected sections. We would like to Implement a systematic program to provide SI tutors for every section of Math 123 in which the instructor feels it would be useful. SI tutors should be in class every day as well as meeting with students outside of class. Math faculty to participate in screening and training the tutors. To facilitate participation of adjuncts and ongoing communication, it would be helpful to have funds to compensate adjuncts and coordinator on hourly basis for this work. Funds for extensive SI tutoring program (perhaps also for Math 115 and 125) This is an equity issue in that SI tutors have been shown to increase success rates among under-represented minorities.

Question: Based on any of the following assessment methods:
a. course SLO assessment;
b. analysis of course sequencing;
c. indirect assessment indicators such as state exams or employer surveys;
d. student success data such as retention, successrates, degrees/certificates awarded
what changes to the program are planned or being implemented?

Answer: Each semester, the mathematics department modifies the common final exams to better incorporates course SLOs and to make adjustments from observations from previous semesters results. In particular, during last year, the Math 105 FINAL was rewritten by Profs. Blustein and Movsisyan to better incorporate the course SLOs. They included an open ended SLO question, not just multiple choice questions. Math 105 committee has met to review and discuss results of SLO assessment. Expand this committee to include Math 110/112. To facilitate participation of adjuncts and ongoing communication, it would be helpful to have funds to compensate adjuncts and coordinator on hourly basis for this work. Historical data show higher success rates in Math 110 (5-unit pre-algebra) than in Math 112 (3-unit pre-algebra).

For spring 2015, some 112 sections have been replaced with 110 sections. More research could investigate possible confounding variables such as student characteristics and/or instructors. Additional resources from Program 100 would make it possible to offer more 110 sections. Accelerated 105-112. Schedule a pilot project of an 8-week Math 105 followed by an 8-week Math 112 with the same instructor, same time slot. Consider using the version of PLATO used at CSUN (which is different from the one currently used in Learning Skills). Movsisyan to teach pilot sections, planned for Fall 2015. She will need access to computer-lab classroom, such as CE 226 for 4-day time slot. Class size limited by stations in

computer lab. These sections should be funded abov❄ the regular Division allocation since this is an experiment. We are in the process of replacing the 4-semester, 20-unit Math 117-118-127-128 with the 3-semester, 12-unit Math 123ABC. Most daytime sections have been switched to a 3 day/week schedule with 4th day set aside for office hours in the classroom. Two meetings were held in Spring 2014 with full-time and adjunct instructors to discuss possible enhancements of this new sequence. Another meeting is planned (through Tech Fair) for Fall 2014. Dropbox account and folder have been established to begin to create an indexed, easily usable file of worksheets and activities organized topically. SI tutors have been assigned to selected sections. We would like to Implement a systematic program to provide SI tutors for every section of Math 123 in which the instructor feels it would be useful. SI tutors should be in class every day as well as meeting with students outside of class. Math faculty to participate in screening and training the tutors. To facilitate participation of adjuncts and ongoing communication, it would be helpful to have funds to compensate adjuncts and coordinator on hourly basis for this work. Funds for extensive SI tutoring program (perhaps also for Math 115 and 125) This is an equity issue in that SI tutors have been shown to increase success rates among under-represented minorities.

Question: Will these planned changes based on Program SLO assessment necessitate a resource request?

Answer: YES. The math department has several Resource Requests.

Question: How has faculty dialogue regarding assessment results and improvement plans been conducted and documented?

Answer: The Math department now has an SLO coordinator in Dr. Jeremy Jankans. This person, in conjunction with the chair, will oversee ALL SLO assessments in Mathematics.

Dr. Bonnie Blustein and Math Chair M. Robertson presented to Academic Senate the results of the Math 227 STATISTICS SLO assessment REPORT during SP 2015.

Department meetings, where SLO discussion has been included in the minutes. Emails are exchanged regarding SLO assessment and Phase II dialogue. All departmental emails are archived. The math department has more meetings where SLO assessment is discussed. We have noticed varying results from different instructors. Since hiring three new instructors, where each teach math course considered basic skills, Math 105/112 will continue to be a point of discussion for this school year.

Module: Departmental Engagement

Question: What interdepartmental collaboration has your Discipline/Program/Service been involved in during the past six years?

Answer: We have collaborated with the Science Departments on the S-STEM grant and on development of the Physics program. We have communicated with Physics (Prof. Bell) so that our Calculus courses can be taken concurrently with physics classes. The math department would like to see the cycle of physics classes (Physics 37, 38, and 39) begin in two consecutive semesters. This would drastically help our growing population of STEM students in mathematics. (idea - Thomas Harjuno) We have collaborated with Learning Skills on Mathematics tutoring. We have a strong interest in the quality of tutors that are hired in the HLRC to help all of our students at WLAC. I have referred several Statistics students that I have had in my own Math 227 class to become Statistics tutors in the HLRC.

A recent meeting with the Science Chair Bahta and Dean Dr. Walter Jones we discussed increasing the Calculus offerings along with the Physics offerings, allowing students to take both in the same semester, looking something like the following:

Fall 2012	Spring 2013	Fall 2013	Spring 2014
Fall 2014	Spring 2015		
Math 261d(14)	Math 261d(16)	Math 261d(22)	Math 261d(15)	Math 261d(14)	Math 261d(23)
Math 261e(12)	Math 261e(4)	Math 261e(35)	Math 261e(35)	Math 261e(32)	Math 261e(35)
Math 262e(13)	Math 262d(11)	Math 262e(20)	Math 262d(11)	Math 262e(25)	Math 262d(34)
Math 263e(7)	Math 263e(6)	Math 263e(6)	Math 263d(9)
Math 263d(23)			

Physics 38	Physics 39	Physics 37	Physics 38

Physics 39 (12) Physics 37(34)

Future growth OPTIONMATH/PHYSICS A

Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018
Math 261d	Math 261d	Math 261d	Math 261d	Math 261d	Math 261d
Math 261e	Math 261e	Math 261e	Math 261d	Math 261d	Math 261e
Math 262d	Math 262d	Math 262d	Math 261e	Math261e	Math 261e
Math 262e	Math 262e	Math 262e	Math 262d	Math 262e	Math 262d
Math 263d	Math 263d	Math 263e	Math 262e	Math 262d	Math 262e
		Math 263d	Math 263e	Math 263d	
Physics 38	Physics 39	Physics 37	Physics 38	Physics 39	Physics 37
Physics 37	Physics 38	Physics 39	Physics 37	Physics 38	Physics 39

Future growth OPTION MATH/PHYSICS B

Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018
Math 261d	Math 261d	Math 261d	Math 261d	Math 261d	Math 261d
Math 261e	Math 261e	Math 261e	Math 261d	Math 261d	Math 261e
Math 262d	Math 262d	Math 262d	Math 261e	Math 261e	Math 261e
Math 262e	Math 262e	Math 262e	Math 262d	Math 262e	Math 262d
Math 263d	Math 263d	Math 263e	Math 262e	Math 262d	Math 262e
		Math 263d	Math 263e	Math 263d	

Question:	What has your Division/ Department/ Program done since the last review to establish connections with schools, institutions, organizations, businesses, and corporations in the community?
Answer:	Chair Robertson went to a joint meeting between Culver City school district and WLAC before the Fall 2015 semester as part of an outreach program. Previously, Dr. Bonnie Blustein has recently been involved in the LACCD Mathematics Faculty Inquiry Team (FIT), and Math FTLA (on planning/teaching team). Interesting data and reports have been produced. Recently, Loyola Marymount University (LMU), working with a cohort of students from both West LA College and El Camino College established the Jack Kent Cooke Undergraduate Research Scholars Academy (CURSA). The WLAC Transfer Center, under the guidance of Dr. Helen Young, hand-picked one mathematics faculty member (Matthew Robertson) to serve as faculty mentor to these student scholars. During the Summer 2012 and 2013, this mathematics faculty member served as a CURSA mentor for the student scholars that attended the 10-day residence program at prestigious LMU funded by a Jack Kent Cooke Foundation Grant. The faculty mentor not only gave talks about student success at the community college level, but also what might be expected of you when the students transfers to the 4-year university. We would like a WLAC math faculty member to mentor these students this school year. This is an on-going program. Since Mathematics was able to hire three new faculty members Fall2013-Fall2014, one of these new members could serve as a faculty mentor for the CURSA program. This aligns with the WLAC Educational Master Plan, Goal 2c and 5a. regularly hold study sessions at the nearby CoCo's. Though this may not seem like much, it does build a link between WLAC and the surrounding community!

Module: Professional Development

Question:	In order to keep current with new developments in your field, are there areas of unmet professional development needs among faculty in this program? If yes, please describe.
Answer:	New developments in Mathematics are generally beyond the scope of our instructional program. We are attempting to keep abreast of developments in Mathematics Education that may impact our program (such as K-12 Common Standards and the development of alternative pathways to Statistics) but there are no urgent unmet professional development needs at this time.
Question:	For each regular full-time faculty member in your program, provide the committees in which each person is active, and list the 2 most significant professional development activities engaged in over the last 2 years. Activities may include workshop and conference attendance, courses taken, FTLA, Leadership Institute, etc. Committee roles may include chair, secretary, member, etc.

1 Faculty Name	4 First Prof Dev Activity	5 Year First PD Activity	6 Second Prof Dev Activity	7 Year Second PD Activity	
Matt Robertson	Work Environment, Curriculum, Facilities, 5 Tenure Review Committees	Chair, member, member, Chair or member	Chancello❒ s Statistics Institute (CSI) at CoC Oct 2015	2013	

Bonnie Blustein	PIE, 2 Tenure Review Committees, Academic Senate, FPIP	member, member, member, Chair	LACCD District Math Council		
William Bucher	2 Tenure Review Committees	member			

Mohamad Alwash	Transfer	member	Member of the Editorial Board: "Journal of Applied Mathematics"		

Vidya Swaminathan	2 Tenure Review Committees, Budget	member, member, member			
Thomas Harjuno	4 Tenure Review Committees, AGS Primary Advisor, PTK Advisor	member	AGS Faculty Advisor Mettings		
Manushak Movsisyan	Student Success	member			

Jeremy Jankans	SLO, Math SLO Coordinator	member	Joint MAA/AMA Meeting, San Diego, Jan 2013, presentor	2013	
Jamie Jenson	Educational Policy and Standards	member	West Connect Wrkshp, ETUDES		

Henri Feiner	Flex Coordinator	sole member			

Module: Facilities

Question: List and describe any current facilities challenges (e.g., location, quantity, quality) affecting your division/ department's ability to achieve its goals and meet instructional needs.

Answer: 44 of our 78 sections (56%) this semester are held in our math/science building (MSA). Centralization and consolidation are vital for a successful program.

In order to offer the Foundation Skills classes needed by students for their college success, attimes that they are able to attend class, we need sufficient classrooms of sufficient size. Moreover, better student learning and outcomes would be expected if classrooms had more flexibility (i.e., the possibility of rearranging students into groups andback into lecture mode within a single class period.) This can be done with "sleigh desks" but not with very heavy two-person tables, especially those with "privacy panels." "The new MSA-MSB complex, as actually constructed, has fewer classrooms available for math than originally planned due to the subdivision of large classrooms into smaller ones that are too small for the vast majority of our classes. Also, the rooms that are available have smaller capacity than planned due to last-minute decisions by Administration regarding furnishings. As a result, math classes are held all over the campus (e.g., AT-A, B4, GC, SC) making it harder for instructors to help students before and after class and also making it harder to maintain close working relationships with adjunct instructors who may never set foot in MSB. In at least one case, regularly scheduled math classes have been forced to relocate for one or more days due to other programs pre-empting the rooms for testing or other purposes. We are also unable to serve as many students as we would like to, nor to serve them as well, because the classrooms we do have available for our use in MSA are overcrowded and in some cases not configured with the flexibility needed for diverse pedagogies (such as group work).

Question: Specify the division/ department's short term goals (1 year) for facilities improvement and functionality.

Answer: 44 of our 78 sections (56%) this semester are held in our math/science building (MSA). Centralization and consolidation are vital for a successful program.

Our goals for retention and success will be advanced as we are better equipped to teach to a variety of learning styles. Allocation of a sufficient number of large classrooms to accommodate our classes during the heavily-impacted mid-morning time slots, all located on campus in the same general vacinity.

Question: Specify the division/ department's long term goals (2-6 years) for facilities improvement and functionality.

Answer: The Math division would like to see the addition of two types of Math Labs on campus, i) one primarily used for tutoring, staffed by a part-time adjunct (or adjuncts), ii) the other centered in a computer lab setting, where classes that require computers(laptops, CromeBooks, tablets) would be available short or long term.

Again, addressing the WLAC Campus Construction Plan, specifically the alterations to MSA 1, included below is the text from the signed petition delivered to Facilities 2013. "We, theMathematics Department of WLAC, would like to raise several points that we feel have not been fully discussed regarding the Proposed WLAC Campus Construction Plan. 1.) The Mathematics Division and the Science Division consider ourselves stakeholders in any conversation regarding the reprogramming and/or renovation of MSA floor 1. 2.) During the Division Needs Interview, Dec. 17, 2012, the Mathematics Chair Matt Robertson requested the following four items regarding current space needs, defined to be facility not provided or currently deficient: a) Math 100 LAB a specialized LAB area holding potentially 80-90 students, b) Tutoring/Study hall currently MSB 217 is too small, c) Large Lecture Hall ideally for a Statistics Math 227 class we tried GC150 but desks, student work area much too small, and d) Computer Lab with either imbedded computer stations or tablet docking capabilities. None of these requests have been addressed in the new reconstruction proposal. 3.) MSA floor 1 has many viable classroom spaces.

Generally speaking, MSA 1 is severely underused, by ALL current departments using the facility, except for MSA 109, which is very heavily used by the Mathematics Department. MSA 111 could be opened up to other interested departments (Math, Science), the only apparent concern is the securing/concealing the

pharmaceuticals contained in the loosely secured cabinets. It appears that MSA 111 was designed as a PHARMACY TECH class lab, however, PHARMACY TECH is not currently offered here at WEST. There are construction options for the remaining 108/105 or 104/102 or some other combination. Creating at least one larger classroom/LAB from two would potentially increase room usage similar to how MSA 109 is currently used. We propose combining 102/104 into a specially designed statistics classroom (you could perhaps elaborate on how this would differ from typical lecture roo❍ eg workspace, computer stations) that would accommodate the 6 sections of statistics currently offered (occupying the room from 8 am 12:15 MTWTh and TTh 4 9:35 pm and MW 7:30 9:30 p.m.), freeing up regular classrooms for classes now taught in B4, CE, etc. and allowing for expansion into another MW evening or weekend section as projected growth begins to materialize. We also propose combining 105/108 into a math worksho❒ space that could also be used in morning time-slots by instructors who prefer a specialized student-centered worksho❒ type instructional space and by the STEM program for large events.

This is IN ADDITION TO the MSA 0 remodeling of 010-011-013 into two usable classrooms. Together this would compensate for space projected to be lost with remodel of CE and demolition of B4, and might reduce the need for math to use the ATA classrooms. 4.) Consolidation of work space area for ANY division on campus is desirable. For one, it allows easy access from office to classroom/LAB area. It allows easy access from one classroom/LAB area to another classroom/LAB area in a reasonable amount of time. Requiring instructors to move from one classroom/LAB area to another in a short period of time potentially creates hardships for both the instructor and students involved.

Module: CTE Programs

Question: Does this Division offer any CTE programs? IF THE ANSWER IS 'NO' SKIP THE SECTION ABOUT CTE PROGRAMS, AND GO ON TO THE PLANNING SECTIONS.

Answer: No

Question: Review labor market demand. How does your program meet labor market demand? Cite specific examples and sources.

Answer:

Question: Advisory Board Membership. List the member name, company name, title and CTE program for each member.

Answer:

Question: Advisory Board Meetings. List the following information for each meeting held in the last year:

AB Name	Dates	Number Attendees	Minutes

Question: What have been the major outcomes of your advisory board meetings? Of those outcomes, which have been acted upon, and what is your plan of action with regard to other outcomes discussed?

Answer:

Question: Describe and assess the evidence of students' attainment of intended learning outcomes, as measured by the employment and completion success of its students. [Ed Code 78016(a)(3)]

Answer:

Question: Is this program subject to approval/accreditation by specialized state, regional, or national accrediting agencies?

Answer:

Question: Indicate recommendation of the most recent accreditation evaluation of the program and corrective actions taken or planned. The most recent accreditation report and all additional pertinent documentation and explanations should be available on site for consultation.

Answer:

Question: Describe how you have assessed the appropriate improvements in student achievement and learning that have occurred as a result of the improved program practice.

Answer:

Question: Based on survey results, provide a brief analysis of employer satisfaction with program graduates.

Answer:

Question: Provide a brief analysis of student performance on licensure or board exams on first attempt for each program in the Division.

Answer:

Module: Completion

Question: Division Chair/ Program Manager: Fill out your name and date of final approval, save, and submit the program review.

Answer: Matthew G Robertson - Chair/Mathematics 11/06/2015

Question: List the people who participated in this Program Review.

Name	Role
Bonnie Blustein	Full Time Faculty
Jamie Jenson	Full Time Faculty
Jeremy Jankans	Full Time Faculty