

Long Beach City College - Program Review

Program Review 2015-16 - Mathematics AS and AS-T

Program Review 2015-16 - Mathematics AS and AS-T

PR 2A - Enrollment Data:

Enrollment in Math courses has undergone an overall increase of roughly 6.8%, from 11,414 in unduplicated yearly enrollment in 2012/13 to 12,200 in 2014/15. Traditionally math instructors have allowed class enrollment to grow well beyond the Cap (currently 40 for a single section class) to help alleviate the heavy demand; as a result, the program load (WSCH/FTEF) for math remains one of the highest ratios on campus. This will not change much as a result of the department's move to the new V- building, where classrooms operate under a physical maximum capacity of 38 students in our single section lecture rooms. Instead, even more course offerings will be required to meet demand. The overall effect upon the program will be to offer more classes, hire more instructors to teach these classes, and continue to anticipate growing enrollment. A new and certainly welcome trend is the demand for more STEM and Statistics classes. Demand for our Introduction to Statistics has grown at an incredible rate, posting 45% increase in unduplicated yearly enrollment, from 1538 in 2012/13 to 2233 in 2015/16. Due to this increase the department continues to retool as well as reach out to hire instructors who can teach a variety of topics beyond remedial math.

PR 2B - Achievement Data:

Retention rates overall have held steady at nearly 80%, while overall success rates hover at nearly 50%. These numbers are mirrored by the traditional semester lecture class numbers, which is not unexpected as the vast majority of classes offered in the program are of this type. Summer and Winter session classes enjoy much better numbers, with retention in the low 80s and success at the high 60s percentiles. These numbers are not unexpected, as instructors have noticed in the past that summer students are generally more driven to succeed and also enjoy a more immersed learning experience. The Workshop model of instruction has also helped to improve the Summer/Winter numbers as well. Beginning this Spring we shall be able to test whether the Workshop model improves student success in a 16-week semester, as the department plans to run three back to back to back dual Workshops taught by full-time instructors. We shall continue to see how the accelerated math class model – wherein a student can sign up to take two math classes back to back in one semester – aids in the improvement of student success as well. Hybrid and WEB classes continue to lag in terms of success, which is also not unexpected. Retention is down near 70% while success hovers in the mid-30%. However, this does indicate an improvement over years past as more instructors are working together to design best practices and orientation processes. Finally, the current design effort for next year's schedule shall incorporate alternative class meetings that the department shall be interested in monitoring for what is hoped to be enhanced student success. The infusion of new talent in the form of our many probationary faculty members and other veteran instructors is expected to enhance student success by offering different and more current teaching modalities which include teaching technologies, more flipped classrooms, and online homework software/tutorials. Currently there is a scheduling committee dedicated to coalesce all scheduling ideas in the department into a new and improved student-focused math schedule for the entire 2016/17 school year. Finally, the Math Success Center (MSC) continues to bring innovative ideas to support our student goals via improved Student Learning Activities (SLAs) as well as proposed embedded tutors for all other courses. SLAs include both instructor-led workshops and Directed Learning Activities (DLAs); both of these learning models are conducted in the MSC.

PR 2C - HR (Staffing) Data:

The department finally has reason to cheer as much of its staffing woes have been answered within the last two years. Although we have had three instructors retire within this past cycle, we have been able to hire eleven new full-time faculty members, including an Instructional Specialist to run the Math Success Center (MSC). The department has thus grown to 30 full-time instructors, a third of which are still probationary. This is still not enough to reach the 75/25 ratio, but has helped the department improve this ratio to the point that over half of all course offerings are now taught by full-time instructors, complete with scheduled office hours.

The department has also enjoyed the contributions of our new Administrative Assistant, Elena Sanchez, who has brought a new professionalism and energy this past semester to our growing department. This assistance was very long overdue, and is enabling our department to better focus on our projects. Currently much of Elena's time is spent supporting our huge department, but she is also being tasked to support other departments in the school as well as the dean himself as needed. The services of our AAA Wendy Slater have been curtailed, but both ladies continue to work beyond maximum capacity.

As indicated by enrollment by ethnicity numbers, it is apparent that the predominant ethnicity – Hispanic/latino – continues to climb, rising from 50% of all enrollment in the program in 2012/2013 to 58% in 2014/2015. This growth in the Hispanic student body is also reflected in the department's hiring of both full-time and part-time instructors who are directly connected to this burgeoning ethnic group.

The department finally has reason to cheer as much of its staffing woes have been answered within the last two years. Although we have had three instructors retire within this past cycle, we have been able to hire eleven new full-time faculty members, including an Instructional Specialist to run the Math Success Center (MSC). The department has thus grown to 30 full-time instructors, a third of which are still probationary. This is still not enough to reach the 75/25 ratio, but has helped the department improve this ratio to the point that over half of all course offerings are now taught by full-time instructors, complete with scheduled office hours.

The department has also enjoyed the contributions of our new Administrative Assistant, Elena Sanchez, who has brought a new professionalism and energy this past semester to our growing department. This assistance was very long overdue, and is enabling our department to better focus on our projects. Currently much of Elena's time is spent supporting our huge department, but she is also being tasked to support other departments in the school as well as the dean himself as needed. The services of our AAA Wendy Slater have been curtailed, but both ladies continue to work beyond maximum capacity.

As indicated by enrollment by ethnicity numbers, it is apparent that the predominant ethnicity – Hispanic/latino – continues to climb, rising from 50% of all enrollment in the program in 2012/2013 to 58% in 2014/2015. This growth in the Hispanic student body is also reflected in the department's hiring of both full-time and part-time instructors who are directly connected to this burgeoning ethnic group.

PR 3A - SLO - summary of collected program data:

Data continues to be collected for each math course taught. Problems selected by each course committee are disseminated to every instructor teach that course for inclusion in each of their finals. These problems are graded and the results are sent to the SLO officer for uploading into TracDat. The success rate for each problem within a course is then transmitted to the course committee for assessment. Depending upon what these rates are, the committee is charged with the duty to respond. If rates are high then it may be decided to assess a different skill for that class. If rates are low then the committee should then recommend to the department that faculty members discuss methods to better convey that topic to the students.

PR 3B - SLO - uses in program improvement :

It is an ongoing project of this department to strive for new and innovative methods of getting topics to the students in an understandable and effective manner. In many cases the SLO data merely quantifies what is already known by most instructors in the first place; that is, topics identified as troublesome for many students are already known by faculty. This does not mean that the department settles for this status quo; on the contrary, faculty members - perhaps goaded by SLO data - continue to look for ways to achieve higher student success without sacrificing the integrity of the program.

PR 3C - SLO - action/ change based on results:

Data collected on the Workshop model has caused this department to intensify its efforts here as a means of improving student throughput in remedial math classes. Data collected regarding our distance learning efforts are also mildly encouraging. SLO data has pointed out to the department the age-old bugaboo of applications, and there is not thought of focusing on problems there as well. One idea is to quiz students with unknown applications in order to better measure students' abilities to think for themselves, that is, critically.

PR 4A - Projects/ Strategies-development & change:

The goals/projects of the department have not changed that much, but much progress has been made. One "new" goal, Student Success, has actually been created to house a number of projects from other goals, and serves to better focus and organize the department's efforts in this area. Another goal, Math Education, is very new and is in response to the need for effective math teachers in the community, the current educator effort that has begun campus-wide, and the low enrollment numbers this sequence of classes has been suffering for the past two years.

PR 4B - Projects/ Strategies - results:

These goals are listed according to the projects reported in the Math/Engineering department plan; as such, those goals not pertaining to the Mathematics program shall be missing. Also, SLAM in the narrative to follow shall refer to the "Statistics and Liberal Arts Math" alternative math pathway.

Goal #1: Improve Support of Part-Time and Full-Time Faculty – A need was perceived, long in growing, that, as the procedural tasks of the college became more involved and our students and faculty took to communicating almost exclusively online, it would better serve our faculty members if all information relevant to their tasks be consolidated onto one math department webpage. All instructors will know where to go to get their questions answered and the department will thus work in a more organized manner. A mentoring program to provide support for newly hired part-time instructors is also in the works. Finally, informal assessment of student success has led to the idea of course-by-course support provided by faculty for faculty. Such support will be in the form of course material sharing, class strategies, and informal seminars.

Progress has been achieved on this project. Currently there is a Moodle site with links to various resources such as sample syllabi, FAQs, etc. to serve all instructors, whether veterans or newly hired adjunct faculty. Also scheduled January 22nd 2016 is the department's very first adjunct faculty orientation wherein tenured faculty members shall discuss with their part-time

peers how to navigate the processes of LBCC; lunch will be provided by Pearson reps who will get the chance to introduce the latest version of ALEKS tutorial software to those who attend.

Goal #2: Improve Student Success – Certain departmental projects fit together and so during department planning this new category was created to house these efforts. Chief among them is the desire to continue to expand the Workshop effort into the regular Fall and Spring semesters in order to achieve greater student success. The increase in student success due to the Winter/Summer workshops has been well documented, and in light of this the department sees the wisdom of providing this teaching/learning model to more and more students. Working within the limitations of the new V building, the latest plan – to be implemented in Fall 2016, contingent upon requested resources – is to run dual workshops within the double section classrooms, supported by laptops that students may borrow in order to work within the flipped workshop environment. Many more supporting efforts can be found delineated within the department plan.

Goal #3: Investigate New Math Education Plan Pathways – the department as a direct result of the low student success rates has designed and implemented Math 115, an applied algebra/pre-statistics course that may be taken instead of Math 130 (Intermediate Algebra) as a prerequisite for Stat 1. This course is more contextualized and has less abstract algebra elements than Math 130 and is meant for the SLAM students who desire access to statistics.

A one unit culinary arts math class has also been designed and implemented in collaboration with the Culinary Arts faculty in order to ready students for the math they will encounter in the kitchens and restaurant. This class can also be modified to support any CTE program that requests it.

A math “boot camp” called Math Matters is currently being designed for the Summer 2016 session that is envisioned to ramp up students’ math skills in preparation for better math placement via AccuPlacer.

Finally, via a Student Equity grant the alternative math pathway (SLAM) is currently being researched and designed for implementation in the near future. Such a path might look very much like Stat Way, or perhaps mirror the math pathways at neighboring colleges such as Santa Ana.

Goal #4: Improve the Placement of Students in Math Classes – It need not be pointed out that, if students are placed in classes optimally suited to their skill levels, then these students will not become frustrated and have a much better chance of success, which will in turn cause student success rates to rise. Via a Student Equity grant, members of the department together with members of other campus departments (including assessment) are working on Math Matters, a 2-3 week math “boot camp” intended to ramp up students’ math skills in preparation for their math placement tests. The first Math Matters implementation is slated for Summer 2016. In the meantime the alternative placement algorithm - designed for incoming Promise Pathways students and which takes into account multiple measures such as high school GPA and last high school math class taken - has proven successful (students who choose to place higher than their Accuplacer score have proven just as successful as those who entered the class via Accuplacer only) and is now being implemented for those incoming students whose high schools currently share student data with the district.

Goal #5: The department takes student scheduling concerns very seriously and are motivated to implement prudent adjustments to better serve our student population. Efforts are being made to work with other departments to avoid unnecessary scheduling conflicts, to put in place an efficient conflict-free schedule for the engineering and science students, and to better schedule our hybrid courses to serve our part-time students and accommodate their busy schedules. A committee is meeting over Winter 2016 break in order to redesign the year round schedule to best implement not only our current course innovations but to also cater to our various student needs. Workshops, daily meeting schedules for remedial students, lecture/workshop designs shall all be considered.

Goal #6: Enhance and Improve Math Distance Learning – As mentioned in this document the retention and success rates of our distance learning classes has improved significantly. It is conjectured that this is due to a maturing of the distance learning effort as well as an infusion of newer talent in the department. Distance learning committee meetings are now happening on a regular basis where best practices and processes are discussed. Some outcomes have been the creation and implementation of a more uniform distance learning modality. The measuring of student learning outcomes and success rates are also now being implemented and discussed departmentally.

Goal #8: Improve and Institutionalize the Assessment of SLOs – The department contributes to the college-wide SLO data collection and assessment. Course committees, formed years ago, are now more active in SLO data collection and are now meeting quasi-regularly to discuss results. The department as a whole is also active in meeting to discuss student success in general as well as staying current with math education in department meetings and also “Mathing Over Lunch”, another Student Equity grant that funds colleagues to read assigned publications to discuss over lunch. The SLO effort has reminded this department to meet more regularly in order to share best practices and innovative ideas, as well as the future of math education at the community college level.

Goal #9: Expand and Improve the Role of the Math Success Center – Past data has already shown that the MSC has improved the student success rates of the math program. Requiring Math 815, Math 110, and Math 130 students to either attend workshops or work on a DLA in the Center according to a prescribed schedule has had the desired effect of introducing students to the benefits found in the MSC, including videos, tutors, and the workshops themselves. Students may also study together in an enclosed room designed for this purpose if they’d prefer. Currently the MSC is proposing the embedding of tutors into classes and scheduling study sessions with students in the hopes of increasing student success in all math classes. The computer lab has not been utilized to its potential as yet, and plans are in the works for that component as well.

Goal #10: Create Greater Team Spirit – For the rest of these goals to be realized, the department needs to work together; the better the sense of team, the better the results, which leads to greater student success as well. Past hiring has caused the department full time teacher ranks to swell to 30, over one-third of which is probationary. With this young new talent has

come fresh new energy and enthusiasm. These new faculty members are contributing greatly to the team feel of the department, and it is infectious. After a hiatus of over two decades, the department has already hosted two department get-together potlucks, and many lunches in the new Bistro as well. The faculty wants to spruce up their new working environment with decorations and wall murals, and are excited about contributing to Science Night again. And the MSC is no slouch with Moises Gutierrez building up team camaraderie with instructors, tutors and staff. Teamwork is finally kicking in at the math department.

Goal #11: Continue to Commit to College Promise – The department believes in the philosophy of the College Promise effort and continues to provide whatever is needed. Classes have been added, semester schedules changed, and input has been provided at many Promise Pathways meetings, and this effort will continue on into the future. Department faculty members also realize the value of exchanging ideas with their colleagues both in the high schools and at the universities. Currently there have been new additions from the department to this effort. In particular, the engineering faculty members have met with their colleagues from LBCC and from State, which bodes well for that program. College Promise is a terrific platform from which to launch the current alternative math pathways as well.

Goal #12: Improve Math Support of CTE Programs – The department has accomplished its design for CTE support by the creation/implementation of Math 825, the 1-unit culinary arts math course mentioned previously. As was mentioned this class can be adapted to support the needs of any program who requests it. There is also a bridge built from ELECT 225 to Math 115 that allows our electronics program students to move with comparative ease beyond the certificate to an AA degree and beyond. All that is left now is to advertise these opportunities to our community of students and staff.

Goal #13: Math/Technology Building – We are now housed in this newest building at LBCC and are already seeking minor redesigns to fit our department's vision for the future. Current ideas beyond the predictable hitches in the new building include converting our double section classrooms into Workshop environments and beautifying our working spaces (students and faculty) with inspiring scenes that reflect the incredibly rich history and future that mathematics possesses.

Goal #14: Math Education – The newest goal pursued by this department is to strengthen our math educator program. The department wishes to tie in with the current educator project already begun by the Reading faculty to include the vital math component. Currently headed by Jackie Ward, a probationary faculty member with ties to the math education component at Long Beach State, the department supports this efforts growth as it considers math education vital to the community.

PR 4C - Projects/ Strategies - future plans:

As seen previously in this document, the department has goals that reach on into the future, for the betterment of math education for our LBCC students. In a nutshell:

Websites and orientations for faculty support, more Workshop model classes, a robust SLAM math pathway, regularly scheduled Math Matters workshops that feed into math assessment testing, a working a effective math schedule of classes good enough to roll over year after year, an effective online education component that rivals success rates of more traditional classes, an SLO process that flows seamlessly and provides additional insight into best practices, new MSC innovations supported and implemented by the college, a robust College Promise effort, a department continually trying out innovations in the classroom - homegrown or otherwise - and a department working as a team to get these things done.

PR 5 - Dept - how does it fit into big picture?:

The Math program continues to support the college wide goals as stated in the Educational Master Plan, the Board of Trustees goals, as well as those espoused in the President's Agenda. Math is one of the foundational skills needed by all students who wish to improve themselves and make their dreams a reality, whether they wish to earn a certificate here at LBCC or to transfer to a 4-year university. It continues to be a challenge to discover solutions that will boost student success above the 50% threshold overall. Math department faculty members continue to search for ways to improve student success by tweaking teaching modes inside and outside the classroom, redesigning our schedule, and working to improve the alternative math pathways put in place within the past couple of years. The skill set the math program provides our students includes critical thinking, problem solving and logic, and hopefully a realization that mathematics is one of the most beautiful of all human creations. These skills will allow the student to resolve problems later in life or on the job with calm intellect and mental acuity rather than allowing emotions to hold sway. The burgeoning demand for data numeracy skills in the form of statistical analysis has also challenged our department, which in turn adds fuel to the drive for a robust SLAM (Statistics & Liberal Arts Math) pathway. It is apparent that the goals of the Math program dovetail nicely with those of the college in aiding our students to achieve success and supporting the College Promise Partnership.

Project/ Strategy and Resource Needed
