Math Department Unit Assessment

Guiding Questions for Department Chairs

1. Please highlight any changes since you submitted your unit assessment (e.g. enrollment trends of the units as of Fall 08).

Please see attached copy of the original plan. I have added changes in red.

Editor's note: changes are no longer in red

2. What do you see as the strengths of each of your units?

The Mathematics unit has a very cohesive group of faculty who are genuinely interested in improving the success of our students. The department has a strong work ethic which is reflected in the fact that our goals and responsibilities within the college community are continually met in a timely manner, for example SLO’s and PNCR currency. We are actively reviewing and updating curriculum and tracking changes to insure they have the desired results. The Title V Math Center is a model for delivering mathematics education and the efficient use of technology and tutoring resources. The unit has a stated set of guidelines that make for an efficient unbiased operation. Mathematics enjoys the respect of our fellow faculty for honesty, integrity, and expertise. With the addition of CSIT to the department we have the opportunity to develop the natural synergy between these disciplines.

What do you see as the challenges?

The biggest challenge the department has is one that is shared by others in the college. There is an administrative culture at the college that does not respect the expertise and professionalism of the faculty and in fact does not expect them to possess these qualities. I have described the issue of new curriculum and the MDTP placement exam elsewhere in this document. When months of effort by dedicated professionals is arbitrarily disregarded, their sense of accomplishment and ownership of the task is also dismissed. A sense of futility ensues and the best faculty begin to ask themselves “Why bother”. Tenured faculty will never see a raise or Christmas bonus for their work. Their reward is in their sense of accomplishment when their efforts succeed. Along with higher expectations of the faculty comes responsibility but this is the definition of professionalism.

Yes, there are faculty that deserve the disdain of their colleagues and the administration. But in a any well run enterprise, good managers know on whom to rely for guidance within their realm of expertise and who to marginalize. I ask that administrators become better managers. This is a frightening step to take but I think that both sides would rise to the occasion and this would benefit the college immeasurably.

The staffing uncertainties within Mathematics over the next year and a half are a real challenge. The overwhelming reliance on adjunct faculty has been and will continue to be a problem. The lack of CSIT curriculum expertise and the ossified nature of the program present a challenge that can only ultimately be resolved by additional tenured faculty in the discipline.

The uncertainty as to what form the institutionalization of the Title V Math Center will take. This has been described in detail as an addendum to the original plan, see attached.
3. How does your unit planning support the mission of the college?

See comments elsewhere in this document.

4. What are your visions for changes, revisions and growth?

These are detailed throughout the changes to the original plan, see (1) above.

5. What resources are needed to support as well as to build the programs in your Department?

- Facilities? A Title V Math Center institutionalized within the Mathematics department. Classrooms designed for teaching Mathematics.
- FTEF? In addition to potentially replacing Leslie Foster with a tenure track position should she decline to return, and hiring a one-year replacement for Abdo Malki, we need to add at least one tenure track mathematics faculty over the next two years. By replacing or adding a tenure position, we must augment the CSIT faculty. Finding a candidate qualified in both disciplines would be an ideal solution in the short term followed by additional CSIT hires as attrition of the current faculty occurs.
- Staff? Dedicated secretarial support for the daily operation of the department and adequate program assistant-level staff to support an institutionalized Title V Math Center.
- Technology? Facilities as described in our meetings on the East campus building.
- Other?

6. What is the status of SLO assessments in your department? The mathematics SLO’s are ahead of schedule according to the five year plan. This applies to both definition and assessment. The status of CSIT SLO’s is uncertain but should come to light at the program review, see attached.

7. What is the status of the course outlines of record and course updates in your department?

All Mathematics PNCR’s are up to date while most of those for CSIT are extremely outdated. So much so that we were forced to cancel a class in the fall because it would not load to the DEC system and allow students to enroll. The department chair and discipline vice chair are preparing updates to eight PNCR’s. These should be ready for curriculum committee review by mid March.

ADDENDUM

In addition to the continued growth in the program over the last four years and continuing with the current semester, we notice a divergence of enrollment in the day vs. evening hours. I believe this is due in great part to an increase in the enrollment of graduating high school students. This assumption seems to be further supported by the almost flat evening enrollment in the years 2005 to 2006 during which time day enrollment increased by slightly more than 13%. Historically LAMC has suffered from the perception on the part of local high school students that the college lacks strong academic programs and fairs poorly in preparing students for transfer to University. The past, and to a large extent the continued institutional emphasis on certificate/vocational education can only reinforce this perception. However, I believe this perception is changing.
Using Title V funds, the Mathematics Department has installed and staffed a Math Center consisting of computing lab and tutoring facilities. The center has state of the art technology both for the student and the instructor. Our tutors are carefully selected and well qualified. We have also been able to hire several assistants to manage the center and provide coverage during all open hours. We have significantly modified the curriculum for several courses in order to take advantage of the center’s offerings. I believe this commitment to the academic success of our students, made by the college and the Mathematics Department and symbolized by our Title V facilities and staff has begun to change this perception.

Math classes have experienced continued growth since this analysis was done. All sections of remedial algebra, Math 112, 115, and 125 closed or had less than 3 seats available before by the beginning of the semester. This is in spite of the fact that 9 additional sections over the spring 2008 semester were added to the fall 2008 semester. Unfortunately due to class cancelations and restrictions imposed by budget concerns, no additional sections were offered in spring 2009. In the spring 2009, all sections of remedial algebra were closed (3 sections had fewer than 2 seats available) the week before classes began. Anecdotally, There were 18 students waiting in my classroom on the first day of class to add Math 112. I have heard similar stories from other faculty and students.

The college has done a remarkable job recruiting students but if our students can not register for core curriculum classes, they will go elsewhere. Class offerings in Math, English, and other core curriculum should be given priority and sufficient sections should be offered to meet demand.

2)

The college must commit to expanding the impact of the Title V Math Center to the entire Math curriculum as well as to related academic areas. The center is constrained by lack of physical space. Title V funds are available to equip two smart classrooms and an additional computing/teaching lab. The college must commit to providing adequate space and infrastructure to house these additional facilities.

Two Smart-classroom bungalows were added. This has allowed the department to expand its use of computer supplementary instruction to all sections of Math 105 and make better use of existing Title V Math Center facilities.

These facilities and offerings should be aggressively advertized in the local high schools. This effort should be coordinated with the physical, life, and chemical sciences and should present a unified thoughtful program aimed at transferring students to university.

Additional classes aimed at the general high school population can be developed. Examples of these are: an on-line/computer based course to prepare the student for the college’s math placement exam; a course to prepare the student for the Cal. High School Exit exam.

Using Title V Math Center facilities, the department has put extensive resources on the department web site for both students and faculty. To help prepare the student for the Math 115 final, the web site includes video lectures focusing on word problems, as well as practice problems and a sample final exam including video solutions. For Math 227, a guide to MINITAB has been included to supplement the textbook.
The department currently has about 40 adjunct faculty, making coordination and communication challenging. We have begun to address this problem through a password-protected set of faculty resources accessible through the department web site. These include SLO’s, department polices, course outlines, and class resources such as sample exams, exercises, and study guides.

Hire a full time Program Assistant to coordinate and promote the Math Center and a ½-time assistant to work with the high schools and in the center.

See comments below regarding institutionalization of the Math Center.

3)

The Math department’s continuing improvement in success rates is best interpreted with in the context of the declining success rate for the college as a whole. Before SLO’s the Math 115 department common final helped focus the instructors’ emphasis on stated department learning goals. The data gathered as a result of the common final has helped identify areas and topics that require more attention. The impact of these changes is significant given the large enrollment in this course. The department has been very active in the area of curriculum development, textbook selection, and appropriate inclusion of technology in the curriculum. Two courses are of particular interest in this regard.

Math 113 and Math 114 were completely redesigned as part of the Title V grant. The curriculum was changed to include a co requisite one-unit, two-hour lab component. A textbook was chosen that best incorporates computer based tutorials and supplemental instruction. A common syllabus was defined and all sections are taught through the Math Center. All class exams are standardized across all sections. Course topics are tightly coordinated with tutoring activity in the Math Center. Prior to these changes, average success rates for these courses for the years Fall 2002 through fall 2005 averaged 60% and 45% respectively. While these changes were in place in the fall 2005, the math center was not fully operational until about half way through the semester. The full impact of the new curriculum and teaching methods did not occur until the spring 2006. As a result, the average success over the fall 2006 and fall 2007 semesters for these courses was 69% and 70% respectively.

During the subject period of analysis the department declined to offer tenure to one faculty and subsequently hired an excellent tenure tract instructor. Her contributions to the department have been very effective in making the Math Center programs work.

The department was able to hire and fill one tenure track position that began in the fall 2008. We also hired one instructor under a limited contract for one year to fill in for Leslie Foster who took a one-year opportunity leave that began in the fall 2008. Complicating the department’s plans over the next year is the uncertainty of Prof. Foster’s return and the one-tear sabbatical leave that Prof. Malki will begin in the fall of 2009.

4) Duplicate the success of our efforts with Math 113 and 114 to the remaining remedial courses. Expand the use of technology to high impact transfer courses such as Math 227.

Implement new remedial courses replacing the existing Math 113, 114, 115, and 125 courses. This also will incorporate the new Math 125 AA/AS graduation requirement. All the new courses have
gone through the curriculum process and have been approved. These also will include required computer lab time similar in theme to that of Math 113 and 114.

The department worked diligently for almost two years to develop and refine new elementary-intermediate algebra curriculum based on our experiences with Math 113 and 114. This effort was even more critical given the new AA/AS graduation requirement of Intermediate Algebra (Math 125). Textbooks were selected, new courses created and ushered through the curriculum process, and meeting were held with counseling to discuss the new curriculum. Our objective was to begin offering the new courses in the fall of 2008 however district concerns prevented offering the courses. As an alternative the department offered two sections of Math 123a, the first semester of a new course modeled after Math 113 and 114 but providing a slow track for students through Math 125. These sections were forced to cancel due to lack of enrollment. It became clear that the office of student services was not supporting our efforts in spite of our meetings with counseling. The department responded to this by visiting all sections of Math 112, the prerequisite course, in fall 2008. In these visits, Math faculty members explained the purpose and objectives of the new course and encouraged students to enroll. More meeting were also held with counseling. As a result the two sections of Math 123a scheduled for spring 2008 were adequately enrolled in order for the course to be held. Unfortunately the college administration’s more than one year delay making a decision to replace the existing mathematics placement instrument, see below, forced the department to teach the class as a Math 113 class. This required replacing the Math 123a textbooks with Math 113 texts, meeting with faculty and counseling, and potentially taking administrative steps so that successful students can progress into Math 114. In addition, the department has withdrawn all plans to implement these curriculum changes and no new course sections have been scheduled for the fall 2009 semester.

Replace the existing math placement exam, ACCUPLACER, with MDTP. This will allow us to advise students on specific areas requiring remedial work. The student can then enroll in short term/computer based remediation to prepare himself for more advanced placement in the program. The goal is to minimize a students preparation time for college level work and to increase his/her likelihood of success.

Provide incoming students with computer/internet based instruction to help prepare them for the placement exam.

An essential component supporting the new curriculum is the mathematics placement instrument. The new curriculum was designed to take advantage of our experiences with Math 113 and 114 and the technology and services of the Title V Math Center. The new curriculum consisted of three new courses, a three semester sequence and a two semester sequence, potentially three depending on the track. It was immediate from our definition of curriculum requirements that Accuplacer, the current placement test, lacked the granularity and depth to properly evaluate and place students in the new sequences. The department evaluated several placement instruments and after reviewing LA East’s placement model, chose MDTP. The subset analysis provided by MDTP would enable proper placement in the curriculum and additionally support implementing a non-credit course aimed at boarder line Math105/Math112 students.

Over the next year the department worked to prepare for the cutover to MDTP. Meetings were held with representatives from LA East, all cut scores were evaluated, and subset analysis problems were
reviewed. In order to verify cut scores, in the spring 2008 the MDTP test was administered to all remedial mathematics students in the first week of the semester. The department held meetings with matriculation, placement testing, and Bill Duxler who is responsible for interfacing the placement exam with the DEC database. The necessary MDTP licenses and required scanning equipment were purchased.

It was at this point that President Moreno at the request of Student Services made the arbitrary and uninformed decision to prevent the cutover to MDTP. The expertise, work, and dedication of the department to deliver the best mathematics education to our students was ignored. No reason for this decision was given at the time.

In February 2009, the department was told that the president has approved the cutover to MDTP. Since no specific testing cycle has been identified, the effect of this decision is still unknown.

Consolidate all tutoring in the Math Center. This will allow for better coordination between instructors, the pace of topics in classes, and tutoring.

As described above, the department has developed new curriculum that meets both existing pedagogical concerns as well as new graduation requirements. These new courses were modeled on curriculum developed specifically with the technology, tutoring services, and close coordination provided by the Title V Math Center. The success of these courses and the continued improvement of program offerings directly depends institutionalizing The Title V Math Center and retaining these functions with in the Mathematics Department. Direct supervisory responsibility for center operations; tutor hiring, training and scheduling; and center interfaces with other departments, e.g. counseling and placement testing, must remain within the Mathematics Department. It is this structure, during the Title V grant period, that has allowed the department to accomplish so much.

5)

Historically, the Mathematics department has awarded very few AA/AS degrees. With such low numbers any trend analysis is of little value. While we have transferred students who have majored in mathematics, the AA/AS degree is not a goal of much practical value. A baccalaureate is the minimum degree required to enter mathematics-related career fields such as actuarial work. The catch 22 here is that to grow the demand for college level transferable mathematics courses we must first achieve a critical core of technically/mathematically inclined students. This will allow us to demonstrate the utility and allure of mathematics to receptive students and attract more students to the program.

6)

Develop rigorous Mathematics /Computer Science transfer and AA/AS degree programs. While both programs would equip the student with college level math and English skills the emphasis would differ slightly. The former would include math instruction through the first two years of university and include computer science courses intended to provide the basis for further study. The latter would emphasize computer application courses aimed at developing marketable skills.

Coordinate more closely with transferring universities. Meet regularly with our counterparts at CSUN, CSULA, and other schools to insure that new courses meet transfer requirements.
Create a combined Mathematics/Computer Science department. Review, update, add, and archive course offerings to support the goals as outlined elsewhere in this section. Realign existing facilities and staffing to support these goals effectively and economically.

The Computer Systems and Information Technology discipline was combined with the Mathematics Department as of 7/1/08. In the fall semester, the department focused on several critical issues, PNCR updates and SLO planning and assessment. Eight course PNCRs have been redone and should be ready to submit to the curriculum committee by mid-semester spring 2009. Mari Rettke, the discipline vice chair, has identified SLO’s for various courses and will submit them along with PNCR documentation.

The Vice President of Academic Affairs has agreed to sponsor a complete program review of Computer Science and Information Technology (CSIT). We hope to hold this review before the fall 2009 semester.

The department is reviewing the possibility of an AS degree in Mathematics with an emphasis in Engineering. This would primarily target Engineering transfer students and would address all lower division course requirements enabling these students to transfer to university as Juniors.

7) Data has been gathered and historical data exists to evaluate SLO achievement for Math 115. A selected sample of remedial classes covering all courses was administered a set of exams. In part this was to benchmark a new placement instrument but along with exams to be given at the end of the semester we will have the data to assess SLO achievement for all remedial classes for which SLOs have been identified.

The department has developed and assessed SLO’s for all remedial as well as several transfer level courses. Our 5-year plan is on tract to be completed early. We now have 2 semesters of assessment data except in the case of Math 115 where we have several years of data.

8) The FTES growth appears satisfactory but without the overall college trend further analysis is not possible.

The department has experienced a heavy growth in enrollment over the last year. See above for additional comments.

9) While the department’s percent FTEF H tracks closely with that of the college, it is unacceptably high. Even more so when we understand that those sections taught by full-time faculty on an hourly basis are included in the hourly measurement. Additional hourly assignments are often taught by full time faculty to insure the integrity of certain courses. This has been especially true with the remedial classes in the Math Center. I feel this adversely impacts the program the effectiveness of the department. The spike in the fall 2005 resulted from one faculty member taking a sabbatical.

Hire at least two fulltime faculty over the next 3 years.
The department currently has 6 full-time faculty. Our goal is now to hire at least one more over the next two years. This is assuming that should Leslie Foster not return from sabbatical, the department will hire a replacement.

A potential staffing problem exists for the 2009 – 2010 academic year. Should Leslie Foster decide to pursue other interests and not return to the college and with Abdo Malki’s sabbatical, the department would be left with only four full-time faculty, one of whom is a recent hire. Without hiring to replace Leslie Foster and to fill in for Dr. Malki, we will be forced to abandon several projects. We are uncertain at this point whether to return a recent $10,000 award to develop a new course to address the new algebra graduation requirements as they impact various vocational programs such as Culinary Arts and Child Development. Without rehiring to fill these positions the department will not have adequate staff to carry through on these and other commitments.

11) The department’s average class size is consistently larger than the college as a whole and fluctuations track close with those of the college.

12) The use of technology within the department has grown significantly since the installation of the Math Center. The changes in the Math 113 and Math 114 curriculum to include a computer lab and teaching these courses through the Math Center, student success in these courses has increased significantly. The department has redesigned the remedial curriculum to duplicate this success and will begin teaching the new courses in the fall 2008.

Another example of effective use of technology is the Math 227, Statistics. The math department has a mandatory lab for all statistics classes; however, reserving a computer lab to demonstrate the use of technology and experience hands-on Minitab software for all Math 227 classes has been extremely difficult. To standardize instruction and allow for more class preparation time, the math department is developing common power point presentations for instructors to use once all Math 227 classes can be scheduled in smart classrooms. These efforts will only be effective if our faculty have the necessary facilities to make use of technology.

The basic lesson we have learned from our Math 113 and Math 114 experiences is that uniformity and standardization increases student success. And this is even more critical with the large number of adjunct faculty in the department.

Statistics is such an important course because, with the proper use of technology, this subject is extremely useful in any career. The math department has a mandatory lab for all statistics classes; however, reserving a computer lab to demonstrate the use of technology and experience hands-on Minitab software for all Math 227 classes has been extremely difficult. In addition, since statistics involves a lot of writing for definitions and word problems, half of our statistics instructors use power point presentations in the classroom. To standardize instruction and allow for more class preparation time, the math department will provide common power point presentations for instructors to use if all Math 227 classes can be scheduled in smart classrooms. Similar to Math 227, all math classes can benefit from the use of a document camera to project graphs and pictures representing mathematical problems as well as the use of power point presentations provided by textbooks to reduce the amount
of writing and allow more teacher-student interaction. Writing a mathematics question and copying graphs require a lot of class time; that can be replaced by the use of technology.

At this moment, having another computer lab is not yet possible due to the lack of space on campus. However, once the child development building is completed, we should pursue having another computer lab. The math department will design online quizzes, effective online homework, online practice tests and projects that require the use of computers to increase the FTEs for supervised tutorial lab usage. Based on my conversion with Maury, approximately 525 hours of lab usage is equivalent to one FTE ($2000). To run a Math Center efficiently, the expense will be close to $120,000 annually. It is almost impossible to acquire the Math Center self-reliance by having students using the tutorial service on a voluntary basis. With the computer lab, we can create revenue that will lower the college expenses along with increasing success for our students passing their math courses.

The department has participated in meetings regarding the new east campus building. We have identified the need for one teaching lab and one open lab, each with a capacity of about 40 students. In addition we have requested a tutoring center of about 1800 square feet. While premature at this time, we have emphasized the need to design classrooms intended for teaching Mathematics. We have been assured that at the stage in the process we will be consulted on requirements.