Unit Planning for Instruction
Mathematics

For 2007-2008 Implementation

Section I: Mathematics Data Elements

Mathematics	2002-2003	2003-2004	2004-2005	2005-2006
Enrollment	9908	9387	8628	9051
Credits	41629	38833	35682	37529
FTE	1060	961	877	918
Cost/FTE	varies	varies	varies	varies
Retention	79%	88.6%	92%	90.5%
Success	76.2%	75.5%	77.6%	78.3%
Sections	417	396	384	377
Capacity Analysis	92%	89%	81%	84%

1. Enrollment rebounded during 05-06 after three straight years of declines—up 4.9%.

2. Capacity has been reduced by 40 sections over the last 4 years due to lower enrollments and maximizing efficiencies (hopefully with minimal impact on course availability and accessibility).

3. Cost/FTE is in the low cost range. Contracted faculty teach 45 credit loads with class sizes averaging over 30 students per course. Efficiencies have been realized by offering fewer sections and retaining more students. In the above table "varies" applies to Cost /FTE since included factors change from year to year giving an inaccurate impression of trends.

4. Retention rates while not as high as we would like have been improving the last five years—see comments under #5 below.

5. Success rates have been increasing on average the last five years. While not as high as we would like, we believe that the location of our classes and instructor offices in close proximity to the Math Resource Center has made for easy access to all of our students and that this has contributed to the steady improvement in the percentages. We are exploring alternative delivery formats (e.g., FSA grant, using our modeling lab, Math Resource Center course offerings) and various supplemental instruction offerings to further improve student retention and success.

Section II: Program Analysis

1. **What did your unit accomplish last year in relationship to your 04-05 and 05-06 planning initiatives? What were other accomplishments not related to the annual planning initiatives?**

❖ **Initiative #1**
Improve Capacity for Assessment, Curriculum Development, and Implementation of Standards, and Address Difficulty in Finding Qualified Part-Time Faculty and Substitutes by Adding Full-Time Faculty.
- **Currently un-funded—budget constraints**

❖ **Initiative #2**
Improve Student Retention and Improve Capacity for Data Gathering and Assessment through Increased Technical Support and Tutoring.
- **Currently un-funded by general fund—budget constraints—but was partially funded by grant funds**

❖ **Initiative #3**
Involve Part-Time Instructors by Compensating for Data Analysis, Curriculum Research and Related Committee Work.
- **Currently un-funded**

❖ **Initiative #4**
Improve student learning and retention, and facilitate effective transitions to and among the many programs that Mathematics serves at LCC through a complete review, assessment, and reorganization of the developmental mathematics course sequences. (The courses in the sequences are Math 10, 20, 52, 60, 65, 70 and 95).
- **Partially funded—50 hours**

❖ **Initiative #5**
Improve Student Learning and Retention by Upgrading Classroom Technology.
- **Funded over a four year time frame**—Eight classrooms upgraded Summer (’06), the remaining two classrooms are being outfitted as smart classrooms this Fall (‘06). These classrooms will enable the division to better implement national standards for math education and hopefully realize increased student retention and success.

❖ **Initiative #6**
Improve Capacity for Program Assessment and Curriculum Development, and Address Student Retention, Needs of Evening Students, Professional Development, Etc. with Release Time.
- **Currently un-funded by general fund—budget constraints**

Outside of these funded and un-funded initiatives, the Mathematics Division continually works on program assessment and curriculum development, student retention, and professional development. The division continues with the following projects:
- Developmental Math Task-Force to work on restructuring the developmental math curriculum at LCC.
- Student Retention Task-Force to work on improving the rates of success and retention in Math and Science for minority students.
- Colloquia to provide the math and science faculty with one hour professional development seminars, throughout the term, based on their interests.
- Assessment Seminars
- Math Anxiety Course for math anxious students

- Developing supplemental instruction modules is also under way.

2. **What assessment activities did your unit undertake last year? In this section, please review and revise assessment plans submitted last year and identify the progress made on last year's assessment plan. Attach the revised assessment plan.**

   - **During Fall 2005 In-service:** In our "Collaborating to Assess Programs" in-service activity, we decided to view all Math Division courses as part of one encompassing Math Program. We identified "inputs" and "outputs" for our program assessment process. The chair gave a historical review of the math program. We discussed the four General Education Core Values (Communicate Effectively, Think Critically, Understand Self & Community, and Explore Academic Disciplines). Then we mapped these Gen. Ed. Core Values to the nine goals from the Mathematics Division Mission Statement and Goals (from June 2000). We then roughed out our general plan.
   - 9/23/2005: **Creation of the Developmental Math Task Force (Dev Math TF).** We had an initial meeting, with included contracted and part-time math faculty as well as faculty from ALS and ABSE / GED. The chair overviewed the history of Dev Math at Lane. We brainstormed many ideas and issues about how developmental math at Lane can be improved. Ben Hill gave an overview of his proposal: "WMD: a Workable Model for Developmental Algebra."
     - As evidenced by Ben Hill's WMD paper, over the years, many faculty have conducted different pilots and implemented innovative teaching strategies, yet few of these caught on across more than one course. What was needed was a comprehensive overview of developmental math. Winter Term 2006, the Dev Math TF began a Delphi process with the goal to "thoroughly and insightfully examining our developmental math program at LCC by determining consensus in areas of agreement and identify issues to address, and then suggest plans of action to improve our developmental math program."
   - **Conducted Assessment Seminars (Stephen Selph W'06; Jean Cassidy Sp'06):** Articles and books read by several staff members have been shared with others in the division, that have led to deep conversation about authentic and meaningful learning. These conversations, in turn, have helped to add perspectives and options when working on program and curriculum review and assessment.
   - **Assessment Team (Stephen Selph & Jean Cassidy):** discussion, brainstorming, looking at and formulating assessment plans, reading assessment articles, and then focusing on the general education mathematics courses:
     - **Assessing Critical Thinking Outcomes in Math 111 (Stephen Selph):** In Winter 2006, a small group met to discuss how to assess critical thinking in 111, and then created some initial instruments. Selph began the assessment project during Spring 2006. He then did data analysis over Summer 2006, and presented results during F'06 In-service.
     - **Assessing Critical Thinking Outcomes in Math 60 (Jean Cassidy**): In Spring 2006, Cassidy, Kirkpatrick, and Selph had initial discussions about how to assess critical thinking in 60.
   - **NSF REESE Grant Proposal:** In Spring 2006, Jean Cassidy, Vicky Kirkpatrick, Stephen Selph, Don McNair (representing math) worked with Aaron Shonk, Sonya

Christian and other disciplines to create the an NSF REESE grant proposal *Deliberate Integrated Assessment Strategy (DIAS): An Action Research Study in STEM Disciplines in a Community College*.

Other related assessment activities:

- Our web-based math placement testing system was fully implemented this year. Now all students (including out reach and high school) can take the placement test on-line.
- The MRC (Math Resource Center) is looking at improving success and retention rates for all their self-paced courses.
- For the third year in a row, we had a division level colloquium "show and tell" with alternate forms of assessment used in the classroom.
- FSA: part of carrying out the grant is to perform an effective multi-level assessment: How does this fold into program assessment?
  * Assessment of content, which module to have it in.
  * Common final questions for FSA 95 compared to traditional 95.
  * Tracking in subsequent courses such as Mth 111: how do FSA 95 students perform in 111 compared to traditional 95 students, compared to those who place directly into 111?
  * In January 2006, we presented the FSA project performance evaluation and analysis at the national FIPSE conference.
  * In April 2006, we shared our FSA results at a session of the joint ORMATYC / WAMATYC meeting (dialog with peers at our regional meetings re: teaching alternatives and assessment).

3. Based on assessment results or other evidence, what program areas (new or continuing) need attention?

- Our attention will be on both developmental and lower transfer level gen-ed math courses.
  - Our focus will be on two critical courses: Beginning Algebra (Mth 060) and College Algebra (Mth 111).
- We are looking at ways to increase student success and improve our assessment measures.

4. Overall, what strengths do you believe your unit demonstrated in 2005-2006?

- Renewed dedication to vision and the mission of Lane, focusing on student retention and success. We achieved better rates in both categories in spite of declining revenues and increased enrollment.
- Creation of excellent learning environments. Numerous full and part time faculty received recognition awards and commendations from their students and colleagues.

5. Overall, what challenges do you believe your unit faced in 2005-2006?

- Loss of experience and efficiencies through retirements and transfers.
- Impact of budget cuts.
- Transitioning to more technology-based learning environments.

6. What conclusions do you draw from this analysis about needed improvements or changes in 2007-2008?

- On the right path but need further focus on program assessment while continuing to improve classroom and student assessment.
- Need to continue to realize efficiencies yet remain student focused and learning centered.
- Maintain (and hopefully continue to improve) offerings and services as class sizes increase to maximums and costs rise.
- Manage student and staff expectations in a tight budget climate.