Lander University: Unit/Program Review Report

UNIT/PROGRAM NAME	Mathematics
OFFICE OF PRIMARY RESPONSIBILITY	Department of Mathematics and Computing
ASSESSMENT COORDINATOR	Andre M. Lubecke
SUBMISSION DATE OF THIS REPORT	May 18, 2009

I. **UNIT/PROGRAM GOAL**: Students graduating from Lander University with a degree in mathematics will have a broad base of mathematical knowledge.

Strategic Goal Supported		1. Learning	
Indicator of Success or Student Learning Outcome	**1.**	Foundations of Mathematics: Students will be able to analyze a given situation, extract pertinent information, and draw correct conclusions. (Specifically included are basic algebraic operations, the elements of set theory, and the fundamentals of logic.)	
	2.	Advanced Algebra: Students will know the basic concepts and applications of groups, rings, fields, and vector spaces.	
	3.	Analysis: Students will know the basic concepts and applications of continuity, differentation, integration, sequences and series, and multivariable calculus. Students will be able to solve the basic differential equations that arise in common applications.	
	4.	Probability and Statistics: Students will know the basic concepts and applications of probability, discrete and continuous density functions, estimation using confidence intervals, hypothesis testing, linear regression, sampling methods and data analysis.	
	5.		
Assessment Instruments and Frequency of Assessment		Instrument	Frequency
	1.	Major Field Test (MFT) in Mathematics	Annually to students in MATH 499 Performance data will be tracked in 5-year intervals. The number of students completing the test each year does not provide enough data for yearly summaries to be meaningful.

	2.	PRAXIS 2	Annually to students in Teacher Certification Program
	3.	Successful completion of the dual-degree Engineering Program	Annually
	4.	Capstone Course Review Problem Sets	Annually to students in MATH 499
	5.		

Expected Outcome of Indicator of Success or Student Learning Outcome		Met (3)	Partially Met (2)	Not Met (1)
	1.	1. At least 50% of graduating seniors will have a total score at or above the national median for seniors; 2. No more than 25% of graduating seniors score below the national 1st quartile for seniors. 3. More than half the cohorts (including both juniors and seniors) will have calculus subscores above the national median.	None	None
	2.	100% pass rate		
	3.	90% or all but one completes the dual-degree program within three years of transferring to Clemson		
	4.	75% of all appropriate problem sets are scored 2.	At least 50% of all appropriate problem sets are scored 2.	Less than 50% of all appropriate problem sets are scored 2.
	5.			

Summary of Data Collected	**1.**	2005 - 2009	2009	2008	2007	2006
		1. 60% (15/25) 2. 16% (4/25)	1. 6/9 2. 1/9	1. 2/3 2. 0/3	1. 2/6 2. 1/6	1. 2/2

		3. 50% (2/4)	3. 08-09 cohort below nat'l median		3. 06-07 cohort below nat'l median	
	2.	2003 - 2007*				
		100% (12/12)	2/2	3/3	1/1	3/3
	3.	2001 - 2008*				
		91% (10/11)	no graduates	no graduates	3/4	2/2
	4.	2009				
		78% (43/55 papers)				
	5.					

Review of Results and Actions Taken	**1.**	Two transfer students who had taken over 15 hours of mathematics courses at another institution performed very poorly (one in 2007 and one in 2009). Both students had taken ALL their calculus and also differential equations at Piedmont Tech. Their scores also impacted the Calculus subscore significantly.
	2.	Continue. No action required.
	3.	Since January 2002, 19 students have matriculated at Clemson: 11 have graduated with only 1 taking longer than 3 years. 7 are still in the program. 1 returned (having maintained a B average in his engineering courses) to complete only a BS in Mathematics through Lander.
	4.	Scores on problem sets were converted to a 0-2 common scale in 2009. Additional revisions to MATH 499 will be discussed during the fall semester. The success of using the Problem sets and Projects for program assessment purposes will also be discussed.
	5.	
	Sum	

Indicator of Success or Student Learning Outcome Outcomes		Indicator of Success Evaluation	Indicator of Success Score
	1.	Met	3
	2.	Met	3
	3.	Met	3
	4.	Not Evaluated	0
	5.	Choose One	0
Additional Resources Required to Achieve or Sustain Results		None	

II. **UNIT/PROGRAM GOAL**: Students in the Mathematics Secondary Certification program will be prepared to teach secondary school level mathematics courses

Strategic Goal Supported		1. Learning				
Indicator of Success or Student Learning Outcome	**1.**	Students will demonstrate knowledge of mathematical pedagogy in written work and in practice.				
	2.					
	3.					
	4.					
	5.					
Assessment Instruments and Frequency of Assessment		Instrument			Frequency	
	1.	Praxis 2 Exam			Annually to students in the Teacher Certification program	
	2.	Portfolio of Student Teaching			Annually to students in EDUC 460	
	3.					
	4.					
	5.					
Expected Outcome of Indicator of Success or Student Learning Outcome		Met (3)	Partially Met (2)		Not Met (1)	
	1.	100% success rate	None		None	
	2.	100% will attain an overall portfolio rating of at least 3.0 on a 4.0 scale				
	3.					
	4.					
	5.					
Summary of Data Collected	**1.**	2003-2009	2009	2008	2007	2006
		100% (12/12)	2/2	3/3	1/1	3/3
	2.					
		100% 12/12)	2/2	3/3	1/1	3/3
	3.					
	4.					

	5.					
Review of Results and Actions Taken	**1.**	Expectations met. No action required				
	2.	Expectations met. No action required				
	3.					
	4.					
	5.					
	Sum					

Indicator of Success or Student Learning Outcome Outcomes		Indicator of Success Evaluation	Indicator of Success Score
	1.	Met	3
	2.	Met	3
	3.	Choose One	0
	4.	Choose One	0
	5.	Choose One	0
Additional Resources Required to Achieve or Sustain Results			

III. **UNIT/PROGRAM GOAL**: Students will communicate mathematical ideas effectively.

Strategic Goal Supported		1. Learning		
Indicator of Success or Student Learning Outcome	**1.**	Students display an understanding of a mathematical topic.		
	2.	Students create a professional presentation.		
	3.	Students display good oral communication skills.		
	4.			
	5.			
Assessment Instruments and Frequency of Assessment		Instrument	Frequency	
	1.	Capstone Presentation Project	Annually to students in MATH 499	
	2.			
	3.			
	4.			
	5.			
Expected Outcome of Indicator of Success or		Met (3)	Partially Met (2)	Not Met (1)
	1.	At least 75% of students	At least 50% of students	Less than 50% of students

Student Learning Outcome		receive a grade of 2 (good) or more on each category of the Presentation Project rubric.		receive a score of 2 (good) or more on each category of the Presentation Project rubric.		receive a score of 2 or more on each category of the Presentation Project rubric.
	2.					
	3.					
	4.					
	5.					
Summary of Data Collected	**1.**	Spring 2009	Spring 2008			
		100% (10/10)	100% (4/4)			
	2.	100% (10/10)	100% (4/4)			
	3.	90% (9/10)	75% (3/4)			
	4.					
	5.					
Review of Results and Actions Taken	**1.**	Capstone presentations first implemented in Spring 2008. Continue. No action required.				
	2.					
	3.					
	4.					
	5.					
	Sum					
Indicator of Success or Student Learning Outcome Outcomes		Indicator of Success Evaluation		Indicator of Success Score		
	1.	Met		3		
	2.	Choose One		0		
	3.	Choose One		0		
	4.	Choose One		0		
	5.	Choose One		0		
Additional Resources Required		None				

to Achieve or Sustain Results	

IV. **UNIT/PROGRAM GOAL**: Students will be successful in employment and/or graduate-level education, as applicable.

Strategic Goal Supported		5. Accountability		
Indicator of Success or Student Learning Outcome	**1.**	None		
	2.			
	3.			
	4.			
	5.			
Assessment Instruments and Frequency of Assessment		Instrument	Frequency	
	1.	Senior Exit Interview	Annually to students in MATH 499	
	2.	Departmental Alumni Survey	Trienially	
	3.			
	4.			
	5.			
Expected Outcome of Indicator of Success or Student Learning Outcome		Met (3)	Partially Met (2)	Not Met (1)
	1.	75% of students desiring immediate employment in the field or entry into a graduate program have secured positions.	None	None
	2.	No more than 10% of respondents express dissatisfaction with their current position 75% of those entering graduate studies have completed their degree or are progressing towards completion		
	3.			
	4.			
	5.			
Summary of Data	**1.**	May 2006 -		

Collected		May 2008				
		100% (10/10)				
	2.	2006 survey results				
		10 respondents; none expressed dissatisfaction; 1 PhD and 6 Masters were completed; 1 Masters in progress				
	3.					
	4.					
	5.					
Review of Results and Actions Taken	**1.**	Of the 10 students graduating from May 2006 - May 2008, 7 accepted teaching positions in SC school districts, 1 has been accepted into graduate school, and two have obtained employment in industry. Questions on the MATH 499 student survey will be revised to more clearly address this goal.				
	2.	Items on the alumni survey will be reviewed and revised to more clearly address this goal before issued again in November 2009. Methods to ensure a higher response rate will be discussed before the survey is administered again.				
	3.					
	4.	Items on the Capstone Course written survey will be reviewed and revised to more clearly address program assessment items.				
	5.					
	Sum					
Indicator of Success or Student Learning		Indicator of Success Evaluation		Indicator of Success Score		
	1.	Met		3		

Outcome Outcomes	**2.**	Met	3
	3.	Choose One	0
	4.	Choose One	0
	5.	Choose One	0
Additional Resources Required to Achieve or Sustain Results	None		

V. **UNIT/PROGRAM GOAL**: Maintain a current curriculum.

Strategic Goal Supported		5. Accountability			
Indicator of Success or Student Learning Outcome	**1.**	None			
	2.				
	3.				
	4.				
	5.				
Assessment Instruments and Frequency of Assessment		Instrument	Frequency		
	1.	Senior Exit Interview	Annually to students in MATH 499		
	2.	Departmental Alumni Survey	Triennially to recent graduates		
	3.				
	4.				
	5.				
Expected Outcome of Indicator of Success or Student Learning Outcome		Met (3)	Partially Met (2)	Not Met (1)	
	1.		None	None	
	2.				
	3.				
	4.				
	5.				
Summary of Data	**1.**	2008 Seniors recommended:	2009		

Collected		The sequencing of MATH 325 and MATH 351 be reversed.	There were concerns about differing faculty expectations and pacing in some upper-level courses.			
	2.	Requiring MATH 134 before upper-level proof courses	Students expressed appreciation for support for attending professional meetings.			
	3.	MATH 390: Technology in the Classroom be offered more frequently for secondary education majors				
	4.					
	5.					
Review of Results and Actions Taken	**1.**	2008: The faculty agreed that the change would be beneficial. The sequencing of MATH 325 and MATH 351 will be reversed in their next offerings. MATH 134 was added to program requirements beginning in Fall 2009.				
	2.	2008: MATH 390 may become a standard part of the graduate education curriculum; therefore no action will be taken at this time.				
	3.	2009: As long as travel funds are available, some will be dedicated to student travel.				
	4.	2009: Faculty will initiate a discussion of each course one-year prior to its next offering to work towards consistency of expectations, workload, pace, and level of material. Pre-requisites for MATH 432 will be changed to reflect current practice.				
	5.	2009: Formation of an undergraduate student focus-group will be discussed in Fall 2009. Such a group would provide a means for students to provide feedback on issues before their final semester in the program.				
	Sum					

Indicator of Success or Student Learning Outcome Outcomes		Indicator of Success Evaluation	Indicator of Success Score
	1.	Choose One	Not Scored
	2.	Choose One	Not Scored
	3.	Choose One	Not Scored
	4.	Choose One	Not Scored
	5.	Choose One	Not Scored
Additional Resources Required to Achieve or Sustain Results		Travel funds for students: $2000	

VI. UNIT/PROGRAM SUMMARY

Unit/Program Goal	Strategic Goal Supported	Unit/Program Goal Outcome		Additional Resources Required to Achieve or Sustain Results
		Score	Evaluation Met: 3.00 – 2.01 Partially Met: 2.00 – 1.01 Not Met: 1.00 – 0.01 Not Evaluated: 0.00	
1. Students graduating from Lander University with a degree in mathematics will have a broad base of mathematical knowledge.	1. Learning	3.00	Met	$0.00
2. Students in the Mathematics Secondary Certification program will be prepared to teach secondary school level mathematics courses	1. Learning	3.00	Met	$0.00
3. Students will communicate mathematical ideas effectively.	1. Learning	3.00	Met	$0.00
4. Students will be successful in employment and/or graduate-level education, as applicable.	5. Accountability	3.00	Met	$0.00
5. Maintain a current curriculum	5. Accountability		Met	$0.00
6.	Choose One		Choose One	$0.00
7.	Choose One		Choose One	$0.00
8.	Choose One		Choose One	$0.00
9.	Choose One		Choose One	$0.00

10.	Choose One		Choose One	$0.00
UNIT/PROGRAM TOTALS		**3.00**	**Met**	**$0.00**