

# **Administrative and Educational Support Report\***

**Department of Mathematics**

**Annual Action Plan  
Annual Assessment Report**

**June 2004 – May 2005**

\*Student Learning Outcomes for this department are available at  
<http://ie.panam.edu/CoSELearningOutcomes.htm>



# Annual Action Plan: June 1, 2004–May 31, 2005

**Unit:** Department of Mathematics

**UTPA Mission:** The University of Texas-Pan American (UTPA) serves the higher education needs of a rapidly growing, international, multicultural population in the South Texas Region. The University preserves, transmits and creates knowledge to serve the cultural, civic, and economic advancement of the region and the state. The University provides students advanced instruction in academic programs offered through innovative delivery systems that lead to professional certification, and baccalaureate, master's and doctoral degrees. Through teaching, research, creative activity and public service, UTPA prepares students for lifelong learning and leadership roles in the state, nation and world community.

**Division:** Academic Affairs      **Unit Head:** Dr. Lokenath Debnath

- Unit Mission:**
- To support the College of Science and Engineering mission stated by committing to excellence in instruction, student performance, research, scholarly accomplishment and professional service.
  - To provide students of mathematics an environment of academic freedom that will ensure the exchange of ideas, the dissemination of knowledge and the appreciation of Mathematics.
  - To inspire students with an appreciation of the impact of mathematics in a global economy, and with respect for the contributions made by previous generations.
  - To provide students analytical foundations empowering them to pursue chosen courses of study where they can apply mathematics meaningfully for the purpose of contributing to current and future societal needs.

**Unit Goal:** Increase Faculty and Student Research Opportunities

- Link to UTPA Goal(s):**
- 1: Ensure undergraduate student access and success
  - 2: Enhance graduate education and research

Unit Objective (Action Priority: #1 is highest)	Link to UTPA Objective	Expected Outcome for Unit Objective (AA-Measurable Objective)	Strategy(ies) to Achieve Expected Outcomes	Assessment Criteria, Evaluation Methods for Expected Outcome	New Resources Needed in FY05
Increased research (1)	2, 4, 5	Increase the number of publications by faculty and students of the Department of Mathematics by 15%.	<p>Increase number of students with undergraduate research experience.</p> <p>Increase number of graduate students pursuing master's research projects.</p> <p>Work towards a merit system that encourages publication.</p>	The department chair, with the help of the department's planning committee chair, will determine the number of papers in progress, papers presented for publication, papers accepted for publication and papers published by the Math faculty for AY 2005 and compare to those of AY	None

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Unit Objective (Action Priority: #1 is highest)	Link to UTPA Objective	Expected Outcome for Unit Objective (AA-Measurable Objective)	Strategy(ies) to Achieve Expected Outcomes	Assessment Criteria, Evaluation Methods for Expected Outcome	New Resources Needed in FY05
				2004. The end of each respective academic year will be used as the effective date for counting.	
		Increase the number of research presentations made by faculty and students by 15%.	<p>Increase number of students with undergraduate research experience.</p> <p>Increase number of graduate students pursuing master's thesis.</p> <p>Work towards a merit system that encourages publication.</p>	The department chair, with the help of the department's planning committee chair, will determine the number of research presentations by the Math faculty for AY 2005 and compare to those of AY 2004. The end of each respective academic year will be used as the effective date for counting.	None
		Increase the number of external grants received by faculty by 10%, and the number of proposals submitted by 15%.	<p>Continue to develop and submit research participation proposals.</p> <p>Allow discretionary released time.</p>	The department chair with the help of the chair of the department's planning committee will determine the number of projects funded out of proposals presented by the Math faculty for AY 2005 and compare to those of AY 2004. The end of each respective academic year will be used as the effective date for counting.	None
		Increase the number of students with undergraduate research experience by 10%.	<p>Obtain more research grants so as to fund undergraduate research students.</p> <p>Having a merit system that rewards working with undergraduates</p>	The faculty of the Department of Mathematics will be asked to update their research files for their student-based research activities. The end of each academic year will be used as the official counting date to determine the percentage of change.	None
		Increase the number of faculty participating in	Have department engage in additional student-based	The department chair, with the help of the chair of the	None

Annual Action Plan, June 1, 2004–May 31, 2005

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		student-based activities by 10%.	<p>activities.</p> <p>Develop merit incentives to reward faculty participating in student-based activities.</p> <p>Place incentives in departmental tenure and promotion document.</p>	<p>department planning committee, will determine the number of organizations and student-based activities supported by the Math faculty for AY 2005 and compare to those of AY 2004. The end of each respective academic year will be used as the effective date for counting.</p>	
		Increase the number of students matriculating into graduate programs by 10%.	<p>Cooperate with efforts of the dean to increase partnerships with regional institutions so as to develop automatic admissions research programs.</p> <p>Continue to establish collaborative arrangements or partnerships to support summer research for students.</p> <p>Create the master's thesis option in the MS in Mathematics.</p>	<p>The department chair with the help of the graduate coordinator will report to the dean, by of AY 2004 and AY 2005, the number of students matriculating in the department's M.S. and in other graduate schools during each academic year. The end of each academic year will be used as the effective date for counting.</p>	None

**Unit Goal:**

Managing increasing enrollment while preserving release time for faculty

**Link to UTPA Goal(s):**

- 1: Ensure undergraduate student access and success
- 2: Enhance graduate education and research

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Increased enrollment (2)	1, 4	Manage course offerings to increase SCH production per dollar of cost by 5%.	<p>Develop teaching strategies to allow non-research faculty members a 15-hour teaching load.</p> <p>Develop an evening component in the department.</p> <p>Investigate larger sections of selected courses to help SCH production while allowing flexibility to keep some sections small.</p> <p>Increase online and distance learning offerings.</p>	The department chair will determine the SCH production per dollar cost for AY 2004 and for AY 2005, and will include this information in his annual report, submitted to the dean of the college and the faculty of the department. Summer SCH production will be considered as part of the assessment and will be reported to the dean of the college. The end of each academic year will be used as the effective date for determining SCH cost.	Increase in faculty and staff budget lines

**Unit Goal:**

Increase resources development/fund raising through gifts and donations

**Link to UTPA Goal(s):**

- 1: Ensure undergraduate student access and success
- 2: Enhance graduate education and research

Unit Objective (Action Priority: #1 is highest)	Link to UTPA Objective	Expected Outcome for Unit Objective (AA-Measurable Objective)	Strategy(ies) to Achieve Expected Outcomes	Assessment Criteria, Evaluation Methods for Expected Outcome	New Resources Needed in FY05
Resource development (3)	2, 4, 5	Increase the funding generated in support of research, teaching, student development, and scholarship by 10%.	<p>Work closely with External Affairs, with community businesses, and with advisory councils to increase gift and donations funding.</p> <p>Develop the department's marketability to attract additional numbers of donors.</p> <p>Support the efforts of the dean to establish</p>	Principal investigators and interested faculty will present reports of their progress in cooperating with External Affairs to obtain gifts and donations.	Funds to promote department

*Annual Action Plan, June 1, 2004–May 31, 2005*

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			collaborations with other universities and with regional and national industries to obtain resources not currently available to the department.		



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Division: **Academic Affairs**

Unit Head: **Dr. Lokenath Debnath**

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- To inspire students with an appreciation of the impact of mathematics in a global economy, and with respect for the contributions made by previous generations.
- To provide students analytical foundations empowering them to pursue chosen courses of study where they can apply mathematics meaningfully for the purpose of contributing to current and future societal needs.

**Unit Goal:**

Increase Faculty and Student Research Opportunities

**Link to UTPA Goal(s):**

- 1: Ensure undergraduate student access and success
- 2: Enhance graduate education and research

Unit Objective (Priority: #1 is highest)	Link to UTPA Objective	Expected Outcome	Assessment Criteria, Evaluation Methods	Assessment Results (Use actual data to describe annual performance)	Use of Results (What change was made?)
Increased research (1)	2, 4, 5	Increase the number of publications by faculty and students of the Department of Mathematics by 15%.	The department chair, with the help of the department's planning committee chair, will determine the number of papers in progress, papers presented for publication, papers accepted for publication and papers published by the Math faculty for AY 2005 and	The number of papers in progress increased from 9 to 10 (11%), the number of papers presented for publication increased from 13 to 15 (15%), the number of papers accepted for publication increased from 6 to 7 (17%), and the number of papers published increased from 9	The Department of Mathematics increased its visibility at the international national and regional levels, and made good groundwork to continue this improvement next year.

Annual Assessment Report, June 1, 2004–May 31, 2005

Unit Objective (Priority: #1 is highest)	Link to UTPA Objective	Expected Outcome	Assessment Criteria, Evaluation Methods	Assessment Results (Use actual data to describe annual performance)	Use of Results (What change was made?)
			compare to those of AY 2004. The end of each respective academic year will be used as the effective date for counting.	to 13 (44%). The average increase in publications was 22%.	
		Increase the number of research presentations made by faculty and students by 15%.	The department chair, with the help of the department's planning committee chair, will determine the number of research presentations by the Math faculty for AY 2005 and compare to those of AY 2004. The end of each respective academic year will be used as the effective date for counting.	Thirteen (13) research presentations by the Math faculty for AY 2005 compare to eleven (11) in AY 2004  The percentage change was 18% for the number of research presentations.	The research community of the department continued to develop a cooperative environment.
		Increase the number of external grants received by faculty by 10%, and the number of proposals submitted by 15%.	The department chair with the help of the chair of the department's planning committee will determine the number of projects funded out of proposals presented by the Math faculty for AY 2005 and compare to those of AY 2004. The end of each respective academic year will be used as the effective date for counting.	The number of external grants received increased from 6 in AY 2004 to 9 in AY 2005. The number of proposals submitted increased from 8 to 11.  The number of external grants received by faculty increased by 50% and the number of proposals submitted increased by 37%.	The most important change was the cooperation of younger faculty with established faculty. This cooperation gave very good results. The new faculty hired in the last three or four years have already obtained grants, proving the success of the research release policy.
		Increase the number of students with undergraduate research experience by 10%.	The faculty of the Department of Mathematics will be asked to update their research files for their student-based research activities. The end of each academic year will be used as the official counting date to determine the percentage of change.	The number of students doing undergraduate research increased from 3 in AY 2004 to 5 in AY 2005.  Undergraduate research experience increased by 67%.	The increase in undergraduate research has made possible an increase in attendance at presentations by recruiters in Mathematics programs.

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		Increase the number of faculty participating in student-based activities by 10%.	The department chair, with the help of the chair of the department planning committee, will determine the number of organizations and student-based activities supported by the Math faculty for AY 2005 and compare to those of AY 2004. The end of each respective academic year will be used as the effective date for counting.	The number of faculty participating in student-based activities increased from 4 in AY 2004 to 5 in AY 2005.  Student-based activities increased by 25%.	The students have been integrated in departmental activities, and have invited faculty to their activities. This has begun a promising trend given that there are a large number of new faculty members who are experiencing this new environment.
		Increase the number of students matriculating into graduate programs by 10%.	The department chair with the help of the graduate coordinator will report to the dean, by August 31 of AY 2004 and AY 2005, the number of students matriculating in the department's M.S. and in other graduate schools during each academic year. The end of each academic year will be used as the effective date for counting.	The number of students in the Math Department's MS program increased from 6 in AY 2004 to 16 in AY 2005.  The number of MS students in Math increased by 62%.	The growth has created changes in the quantity, quality, and variety of graduate courses offered.  The department has seen a renewal of interest in developing a Ph.D. in mathematics.

**Unit Goal:**

Managing increasing enrollment while preserving release time for faculty

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Unit Objective (Priority: #1 is highest)	Link to UTPA Objective	Expected Outcome	Assessment Criteria, Evaluation Methods	Assessment Results (Use actual data to describe annual performance)	Use of Results (What change was made?)
Increased enrollment	1, 4	Manage course offerings to	The department chair will	The production per dollar	The increased funding

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(2)		increase SCH production per dollar of cost by 5%.	determine the SCH production per dollar cost for AY 2004 and for AY 2005, and will include this information in his annual report, submitted to the dean of the college and the faculty of the department. Summer SCH production will be considered as part of the assessment and will be reported to the dean of the college. The end of each academic year will be used as the effective date for determining SCH cost.	cost for AY 2004 was 76.87 and for AY 2005 is 76.66.  Production per dollar cost continues to remain constant.	requested will directly benefit teaching. In particular, the four lecturer positions requested will contribute to coverage of about 19 classes that are currently without faculty for Fall 2005.

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Increase resources development/fund raising through gifts and donations

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Resource development (3)	2, 4, 5	Increase the funding generated in support of research, teaching, student development, and scholarship by 10%.	Principal investigators and interested faculty will present reports of their progress in cooperating with External Affairs to obtain gifts and donations.	The amount of external grants increased from \$2,148,825 in AY 2004 to \$2,635,470 in AY 2005.  External funding increased by 23%.	Faculty research progress and plans are reported in the departmental retreat at the end of the spring semester. These reports plan an important role in the education of the new faculty. The creation of the Mathematics Applied Seminar and the large number of colloquium presentations is a consequence of the

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					increased funding for research activities.

**Additional Resources Needed (if any) that were requested for FY06 during the budget cycle:**

`Travel funds: \$13,000  
 1 full-time secretarial line: \$17, 000  
 Operating budget pool: \$8,000  
 4 tenure track faculty at \$50,000 each = \$200,000  
 4 lecturers at \$40,000 each = \$160,000