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DEMAND

COST

MASTER OF SCIENCE DEGREE IN MATHEMATICS

September 4, 2008

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... we must place intense focus over the next few years on building and enhancing our programs in science, technology, and mathematics ... and perhaps most important of all, science and math education for pre-K through 12 teachers ... I will strive to make UTCs programs in math, science, and technology the strongest in the state and comparable with any in the country.

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Identify, develop and deliver educational and research initiatives that build on university strengths and that meet the needs and opportunities within the business, social, and educational communities of the Chattanooga region. This includes but is not limited to: Identifying and developing undergraduate and graduate programs that define new approaches and new fields of study based on established UTC strengths.

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THE PROPOSAL

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Proposing to offer a Master of Science Degree in Mathematics, with concentrations in four areas:

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THE PROPOSAL

Proposing to offer a Master of Science Degree in Mathematics, with concentrations in four areas:

- a. Applied Mathematics

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Proposing to offer a Master of Science Degree in Mathematics, with concentrations in four areas:

- a. Applied Mathematics
- b. Applied Statistics

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Proposing to offer a Master of Science Degree in Mathematics, with concentrations in four areas:

- a. Applied Mathematics
- b. Applied Statistics
- c. Algebra and Discrete Mathematics

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- d. Education

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Program designed to provide individuals with an in-depth understanding in their chosen area,

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- a. Applied Mathematics
- b. Applied Statistics
- c. Algebra and Discrete Mathematics
- d. Education

Program designed to provide individuals with an in-depth understanding in their chosen area, further preparing them for work in industry, government, and education, or for further graduate studies. Program requires thirty six (36) SCH, which includes an area of application or an internship, and the option of composing a final thesis.

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1. HCSD middle and secondary mathematics teachers.

Survey conducted at Teacher In-Service Day for Hamilton County School District. Received 127 responses of which 95.3% (121 responders) said there is a need for such a degree program in Chattanooga area. **63** of these teachers indicated that they would enroll in the program when it becomes available.

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Surveyed UTC undergraduates enrolled in Math courses numbered 216 and higher during fall 2007; care taken to ensure students did not complete more than one survey form. **49** indicated would enroll in master's program if it were available upon their graduation. **95** students said were willing to enroll as full-time graduate student if financial support were available.

3. Employees of BlueCross/BlueShield of Tennessee.

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Total: **221** respondents to these surveys indicated they would immediately enroll in program if it becomes available.

COST ANALYSIS

Three sources of financial support for students in program.

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Three sources of financial support for students in program.
Main source of student support in form of Graduate Teaching Assistantships funded through Mathematics Department (M-GTAs).

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Math Department currently teaches between 35 and 40 sections of developmental mathematics courses each year.

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Math Department currently teaches between 35 and 40 sections of developmental mathematics courses each year. Number has been increasing and every indication is that it will continue to do so.

Cost Analysis

Expect many students in the program will be part time.

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Cost Analysis

Expect many students in the program will be part time. Projected full-time enrollment in first year is 4 students.

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Cost Analysis

Expect many students in the program will be part time. Projected full-time enrollment in first year is 4 students. Each full-time M-GTA would teach 2 sections per semester and paid \$12,000 per academic year.

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Cost Analysis

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CURRENT COST FOR 16 SECTIONS OF DM COURSES:

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\$75,200 plus benefits (38%) \$28,600 = \$103,800

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COST IF TAUGHT BY M-GTAs:

\$48,000 plus benefits (9%) \$4,320 = \$52,320.

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TUITION WAIVERS FOR 4 STUDENTS:

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TUITION WAIVERS FOR 4 STUDENTS:

$$\text{\$5850} \times 4 = \text{\$23,400.}$$

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YEARLY SAVINGS:

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$$\$5850 \times 4 = \$23,400.$$

YEARLY SAVINGS:

$$\$103,800 - \$52,320 - \$23,400 = \$28,080$$

Cost Analysis

NOTES:

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Cost Analysis

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NOTES:

1. Does not take into account that these 4 students will generate 72 SCH of graduate level courses into state allocation formula each year.

Cost Analysis

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2. Shows that as enrollment in graduate program in Mathematics increases, greater the savings to UTC becomes since more sections of DM courses can be taught by these M-GTAs.

Cost Analysis

NOTES:

1. Does not take into account that these 4 students will generate 72 SCH of graduate level courses into state allocation formula each year.
2. Shows that as enrollment in graduate program in Mathematics increases, greater the savings to UTC becomes since more sections of DM courses can be taught by these M-GTAs.
3. Cost of lecturer to teach a section of DM course is based on salary for lowest paid lecturer. Since these courses are also taught by higher paid faculty, actual cost is higher and ultimate savings will be even more.

Cost Analysis

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Second source of support from request for 4 general Graduate Teaching Assistantships (G-GTAs) from UTC Graduate School.

Cost Analysis

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Second source of support from request for 4 general Graduate Teaching Assistantships (G-GTAs) from UTC Graduate School. 2 of these will start in second year of program and 2 more will begin in third year.

Cost Analysis

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Second source of support from request for 4 general Graduate Teaching Assistantships (G-GTAs) from UTC Graduate School. 2 of these will start in second year of program and 2 more will begin in third year. Cost of each G-GTA estimated to be \$11,880.

Cost Analysis

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Second source of support from request for 4 general Graduate Teaching Assistantships (G-GTAs) from UTC Graduate School. 2 of these will start in second year of program and 2 more will begin in third year. Cost of each G-GTA estimated to be \$11,880. This figure is based on the basic stipend of \$5,500 plus the cost of a waiver of in-state tuition.

Cost Analysis

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These costs are included in estimate of overall cost savings to UTC.

Cost Analysis

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Third type of support in form of Graduate Mathematics Fellowships funded from two newly endowed scholarship funds.

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Third type of support in form of Graduate Mathematics Fellowships funded from two newly endowed scholarship funds. These will generate three fellowships of \$5,000 each.

Cost Analysis

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Third type of support in form of Graduate Mathematics Fellowships funded from two newly endowed scholarship funds. These will generate three fellowships of \$5,000 each. There will be no teaching or other duties required for these fellowships.

Cost Analysis

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Third type of support in form of Graduate Mathematics Fellowships funded from two newly endowed scholarship funds. These will generate three fellowships of \$5,000 each. There will be no teaching or other duties required for these fellowships.

Department is currently seeking external support to match each of these three fellowships so that each will be worth \$10,000 per year.

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Fellowships will be offered competitively with special emphasis in trying to attract women and other underrepresented minorities.

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QUESTIONS?

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THEC Financial Estimate Form
University of Tennessee at Chattanooga
Master of Science in Mathematics

Five-year projections are required for baccalaureate and post-baccalaureate programs and certificates. Three-year projections are required for associate degrees and undergraduate certificates. Projections should include cost of living increases per year.

	Year 1	Year 2	Year 3	Year 4	Year 5
I. Expenditures					
A. One-time Expenditures					
New/Renovated Space	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	-	-	-	-	-
Library	20,000	10,000	15,000	5,000	5,000
Consultants	750	-	-	-	-
Travel	-	-	-	-	-
Other	-	-	-	-	-
Sub-Total One-time	<u>\$ 20,750</u>	<u>\$ 10,000</u>	<u>\$ 15,000</u>	<u>\$ 5,000</u>	<u>\$ 5,000</u>
B. Recurring Expenditures					
Personnel					
Administration					
Salary	-	-	-	-	-
Benefits	-	-	-	-	-
Sub-Total Administration	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Faculty					
Salary	\$ 22,000	\$ 22,440	\$ 22,889	\$ 23,347	\$ 23,814
Benefits	8,360	8,527	8,698	8,872	9,049
Sub-Total Faculty	<u>\$ 30,360</u>	<u>\$ 30,967</u>	<u>\$ 31,587</u>	<u>\$ 32,219</u>	<u>\$ 32,863</u>
Support Staff (G-GTAS)					
Salary	\$ -	\$ 23,760	\$ 47,520	\$ 47,520	\$ 47,520
Benefits	-	-	-	-	-
Sub-Total Support Staff	<u>\$ -</u>	<u>\$ 23,760</u>	<u>\$ 47,520</u>	<u>\$ 47,520</u>	<u>\$ 47,520</u>
Operating					
Travel	\$ -	\$ -	\$ -	\$ -	\$ -
Printing	450	150	150	150	150
Equipment	-	-	-	-	-
Other (Library)	-	-	-	-	-
Sub-Total Operating	<u>\$ 450</u>	<u>\$ 150</u>	<u>\$ 150</u>	<u>\$ 150</u>	<u>\$ 150</u>
Total Recurring	<u>\$ 30,810</u>	<u>\$ 54,877</u>	<u>\$ 79,257</u>	<u>\$ 79,889</u>	<u>\$ 80,533</u>
TOTAL EXPENDITURES	<u>\$ 51,560</u>	<u>\$ 64,877</u>	<u>\$ 94,257</u>	<u>\$ 84,889</u>	<u>\$ 85,533</u>
(A+B)					

II. Revenue

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Tuition and Fees ¹	9,081	12,108	16,144	16,144	16,144
Institutional Reallocations ²	-	-	-	-	-
Federal Grants ³	-	-	-	-	-
Private Grants or Gifts ⁴	-	-	-	-	-
Other ⁵	28,040	65,758	103,476	103,476	103,476
TOTAL REVENUES	\$ 37,081	\$ 77,866	\$ 119,620	\$ 119,620	\$ 119,620