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DEMAND

COST

MASTER OF SCIENCE DEGREE IN MATHEMATICS

September 4, 2008

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2. Response to the Chancellor Brown's call at his Installation Ceremony on February 18, 2006:

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2. Response to the Chancellor Brown's call at his Installation Ceremony on February 18, 2006:

... 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.

3. UTC Strategic Plan (2008 – 2013) (Page 17):

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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.

4. THEC 2005-2010 Master Plan:

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The concept of partnerships is central to the core objectives of the Master Plan and provides the foundation for state-wide policy initiatives

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THE PROPOSAL

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THE PROPOSAL

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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THE PROPOSAL

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

- a. Applied Mathematics
- b. Applied Statistics

THE PROPOSAL

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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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
- d. Education

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- a. Applied Mathematics
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Program designed to provide individuals with an in-depth understanding in their chosen area,

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

- a. Applied Mathematics
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Program designed to provide individuals with an in-depth understanding in their chosen area, further preparing them for work in industry, government, and education,

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- a. Applied Mathematics
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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.

THE PROPOSAL

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
- 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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Three surveys of potential students were conducted.

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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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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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COST ANALYSIS

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

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.

CURRENT COST FOR 16 SECTIONS OF DM COURSES:

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CURRENT COST FOR 16 SECTIONS OF DM COURSES:

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

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COST IF TAUGHT BY M-GTAs:

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CURRENT COST FOR 16 SECTIONS OF DM COURSES:

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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:

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

Cost Analysis

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YEARLY SAVINGS:

Cost Analysis

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

YEARLY SAVINGS:

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

Cost Analysis

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NOTES:

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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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.

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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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.

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.

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.

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.

Cost Analysis

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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 |