



## TENNESSEE HIGHER EDUCATION COMMISSION

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**REGULAR CALENDAR ITEM:** II.B.

**MEETING DATE:** May 16, 2024

**SUBJECT:** New Academic Program  
Tennessee State University  
Business Data Analytics, Master of Science (MSBDA)  
CIP Code: 30.7102 (Business Analytics)

**ITEM TYPE:** Action

**ACTION RECOMMENDATION:** Approval

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### PROGRAM DESCRIPTION

Tennessee State University (TSU) proposes a 30-credit Master of Science in Business Data Analytics (MSBDA) designed for online delivery and twelve-month completion. The proposed program will be offered in a cohort model. Students will progress together through a common program of study with each course lasting four (4) weeks modeling the existing online Master of Business Administration (MBA) program, which is also offered by TSU's College of Business. All students will take a culminating capstone course, applying course concepts to real-world problems in partnership with industries serving on the College of Business advisory board.

The proposed program will provide access to online training in a high-demand field and will prepare graduates to work and excel in a variety of professional capacities across industries reliant on data analytics for decision making. The proposed MSBDA will provide internships and cooperative learning experiences to enrolled students, ensuring students apply skills and knowledge gained through the program in a real-world setting. The proposed program offers unique training in the application of data analytics techniques in a business context, while including additional instruction in management information systems, ensuring that students are prepared to engage in the technical side of data analytics as well.

### INSTITUTIONAL GOVERNING BOARD APPROVAL

The proposed Business Data Analytics, MSBDA program was approved by Tennessee State University's Board of Trustees on June 15, 2023.

### PROPOSED IMPLEMENTATION DATE

January 1, 2025

### ALIGNMENT WITH STATE MASTER PLAN AND INSTITUTIONAL MISSION/STRATEGIC PLAN

The proposed Business Data Analytics, MSBDA aligns with the State Master Plan for Higher Education by preparing students with the skills necessary to thrive in a high-demand technology field through an affordable and accessible program, allowing sustained family prosperity and increased student access. The proposed program will maximize chances of student completion through a cohort model and targeted, early faculty intervention, which aligns with the student success focus of the state master plan. Finally, the proposed MSBDA supports the future workforce by preparing graduates for high-demand jobs in an ever-expanding field.

The proposed program supports TSU’s mission by preparing a diverse group of competitive graduates and focusing on academic excellence through scholarly inquiry, teaching, research, lifelong learning, and public service. Program graduates will be positioned to serve as leaders in the global workforce, aligning with TSU’s strategic plan goals to “produce scholars to change the world,” and “to create a transformative educational environment that impacts Middle Tennessee and beyond.”

**CURRICULUM**

The proposed program will consist of 30 credit hours of coursework offered online. Twenty-one hours will be core courses, with an additional nine (9) hours of elective courses. Coursework will be completed in a cohort model over one (1) calendar year, with all students enrolling together in one (1) four-week course at a time. Twelve new courses will be developed for the program. The proposed program will be housed in the TSU College of Business, which is currently accredited by the Association to Advance Collegiate Schools of Business (AACSB).

Upon completion of the proposed program, students will be able to:

- Define problems to be addressed through data analysis techniques.
- Demonstrate the ability to convert client’s business (or problem domain) into analytics project requirements.
- Demonstrate the ability to collect data from different external sources and corporate databases, to assess data quality, and to provide analysis in terms of exploratory data analysis and data visualization.
- Demonstrate the ability to clean and transform raw data sets for further data analytics processes.
- Demonstrate the ability to use various machine learning algorithms and statistical modeling techniques to the data, including feature engineering and parameter optimization.
- Demonstrate the ability to use propose model validation, evaluation methods, and performance metrics.
- Demonstrate the ability to interpret model outputs, develop managerial and technical implications, and express oneself clearly, accurately, and professionally in both oral and written form.
- Demonstrate proficiency in various data analytics and visualization tools including R, Python, Tableau, Microsoft Power BI, SQL, and database programming.

**PROGRAM PRODUCTIVITY**

Projections for the Business Data Analytics, MSBDA program estimate that 20 students will enroll in the first year, with total enrollment of 30 by year five. The program will graduate its first students in year one. The campus anticipates low attrition figures due to the cohort model, early faculty intervention, and graduation and attrition data for similar existing programs.

	2025-26	2026-27	2027-28	2028-29	2029-30
<b>Enrollment</b>	20	22	24	27	30
<b>Graduates</b>	19	21	32	26	29

**PROGRAM DUPLICATION**

Several public and private institutions in Tennessee offer master’s degrees and graduate certificates in Data Science and Data Analytics. Master’s degrees are offered at East Tennessee State University, Middle Tennessee State University, University of Memphis, University of Tennessee, Chattanooga, University of Tennessee, Knoxville and Vanderbilt University. Institutions offering Data Analytics and Business Analytics

concentrations in an MBA program include the University of Memphis, Union University, University of Tennessee, Chattanooga, and Lincoln Memorial University. Graduate certificates are offered by Austin Peay State University, Middle Tennessee State University, East Tennessee State University, and University of Tennessee, Knoxville. TSU maintains that the proposed program is unique due to its online delivery mode, cohorting, inclusion of management information systems training, and affordability.

The Computer Science Department at TSU offers a Master of Science in Data Science program, but TSU does not anticipate that enrollments will be impacted by the implementation of the proposed program since the methods and training differ.

## **STUDENT DEMAND**

Current TSU undergraduate students enrolled in College of Business programs were surveyed about their interest in the proposed program in Fall 2022. The 70 responses expressed positive interest in the program, with 90 percent indicating that the proposed Business Data Analytics program would provide them with a better career opportunity; 93 percent indicating that they believed that the degree would provide them with better earning potential; and 97 percent of the respondents indicating their belief that the applied nature of the program would yield the skills needed in the field. Further, 67 percent of the respondents indicated an interest in enrolling in the proposed program.

## **OPPORTUNITIES FOR PROGRAM GRADUATES**

Data analytics is an expanding, high-demand field with many opportunities for program graduates. In Tennessee, growth is centered in manufacturing, finance, real estate, and healthcare, with the long-term growth of the state's economy contingent on a strong, well-trained workforce in data analytics. *The State of Middle Tennessee Tech 2023 Report* projected an 18 percent growth rate from 2022-2027 in tech jobs in the region, as well as a 23 percent growth rate for data scientists in the same area. A 2023 Noble Desktop report projected a 36 percent growth for data scientist jobs from 2021-2031, with approximately 13,500 job openings annually in Tennessee. Finally, the United States Bureau of Labor Statistics projects Data Analysts to grow by 25 percent between 2020 and 2030, a much more pronounced increase than for other professions. These openings are expected to be centralized in major metropolitan areas, including Nashville.

TSU conducted an industry/corporate survey during the Fall semester of 2022 to determine the interest of organizations in the proposed Business Data Analytics, MSBDS. Seventy-three percent of the 30 respondents indicated that the program would benefit their employees, and suggested they would be willing to enroll their employees in the program. Responses stemmed from a variety of industries, including but not limited to information technology, banking and finance, healthcare, and accounting.

Letters of industry support indicate willingness to partner with the proposed program are included from CompTIA and Ascension Together with Compassus.

## **INSTITUTIONAL CAPACITY TO DELIVER THE PROGRAM**

Six (6) full-time, tenured faculty will teach in the proposed program, and modest administrative resources are requested to support an existing faculty member to direct the program. Existing space on the TSU Avon Williams campus will be utilized for the proposed program, and the site has sufficient classrooms, computer labs, library resources, and tools required for online course delivery such as video conference tools. The program will be offered fully online, so additional physical resources are not required. One (1) graduate assistantship is requested to provide online tutoring services for students enrolled in the proposed program, and funds to support marketing the proposed program are included in the financial projections.

### EXTERNAL JUDGEMENT

An external review of the proposed program was conducted during an in-person site visit on February 22, 2024 by Dr. Michael Choi, Clinical Associate Professor and Director of the Master of Science in Management Information Systems at the University of Illinois, Chicago. The site visit included meetings with campus administrators and faculty from TSU, as well as current TSU students and industry partners.

Dr. Choi recommended approval of the proposed Master of Science in Business Data Analytics, noting the “enthusiasm” of the administration, department, and students for the proposed program. Dr. Choi indicated that “existing faculty can accommodate the on-line delivery method” due to the online teaching support team in the College of Business. Dr. Choi described the “nationwide need for the skills” developed through such a program and added that the “prospective local job markets will grow rapidly” as Nashville industry continues to thrive. Finally, Dr. Choi commended TSU for proposing an “affordable” program in “one of the fastest growing jobs in all business areas.”

### ASSESSMENT AND POST-APPROVAL MONITORING

An annual performance review of the proposed program will be conducted for the first five (5) years following program approval. The review will be based on benchmarks established in the approved proposal. At the end of this period, the campus, institutional governing board, and THEC staff will perform a summative evaluation. If benchmarks are not met during the monitoring period, the Commission may recommend that the institutional governing board terminate the program.

### PROGRAM COSTS AND REVENUE

The proposed one-time and recurring expenditures for the Business Data Analytics, MSBDA program are listed in Table 1. Projected revenue is displayed in Table 2.

Table 1: Estimated Costs to Deliver the Proposed Program

Estimated Costs to Deliver the Proposed Program						
One-Time Expenditures						
Category	Planning	Year 1	Year 2	Year 3	Year 4	Year 5
Faculty & Instructional Staff (Faculty Lead)						
Accreditation						
Consultants	\$2,000					
Equipment						
Information Tech						
Library						
Marketing						
Facilities						
Travel						
Other						
Total One-Time Expenditures	\$2,000	\$0	\$0	\$0	\$0	\$0
Recurring Expenditures						
Category	Planning	Year 1	Year 2	Year 3	Year 4	Year 5

Faculty & Instructional Staff (Note 1)		\$24,000	\$24,000	\$24,000	\$24,000	\$24,000
Non-instructional Staff (Note 2)		\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
Graduate Assistants						
Accreditation						
Consultants						
Equipment						
Information Tech						
Library						
Marketing		\$33,000	\$33,000	\$33,000	\$33,000	\$33,000
Facilities						
Travel						
Other						
<i>Total Recurring Expenditures</i>	\$0	\$77,000	\$77,000	\$77,000	\$77,000	\$77,000
<b>Grand Total (One-Time and Recurring)</b>	<b>\$2,000</b>	<b>\$77,000</b>	<b>\$77,000</b>	<b>\$77,000</b>	<b>\$77,000</b>	<b>\$77,000</b>

**Table 2: Projected Revenue**

Projected Revenue						
Category	Planning	Year 1	Year 2	Year 3	Year 4	Year 5
Tuition		\$303,810	\$335,790	\$367,770	\$415,740	\$463,710
Grants						
Other						
<b>Total Revenue</b>	<b>\$0</b>	<b>\$303,810</b>	<b>\$335,790</b>	<b>\$367,770</b>	<b>\$415,740</b>	<b>\$463,710</b>