



Letter of Notification (LON)

Policy A1.0 New Academic Programs: Approval Process

Institution: Middle Tennessee State University
Proposed Academic Program: Biomedical Sciences, Master of Science (MS)
Proposed Implementation Date: May 2025
CIP Code and Title: 26.0102 Biomedical Sciences, General
CIP Code Definition:

A general program that focuses on the integrative scientific study of biological issues related to health and medicine, or a program in one or more of the biomedical sciences that is undifferentiated as to title. Includes instruction in any of the basic medical sciences at the research level; biological science research in biomedical faculties; and general studies encompassing a variety of the biomedical disciplines.

LON Submission Date: January 10, 2024
Posted Date on THEC Website: January 10, 2024
Public Comment Period: January 10 - January 25, 2024

Letter of Notification Checklist

THEC Academic Policy 1.0 (Section 1.0.6A) Letter of Notification Requirements:

- ✓ Letter of Support from the President/Chancellor signifying institutional governing board or system office support for development;
- ✓ Program overview;
- ✓ Background information;
- ✓ Feasibility Study;
- ✓ Enrollment and graduation projections;
- ✓ Projected costs to deliver the proposed program;
- ✓ Projected revenues for the proposed program;
- ✓ Letters of support.



LETTER OF NOTIFICATION (LON)

M.S. in Biomedical Sciences

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Office of the President

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January 11, 2024

Steven Gentile, PhD
Executive Director
TN Higher Education Commission
312 Rosa L. Parks Ave, 9th Floor
Nashville, TN 37243

Dear Dr. Gentile:

In accordance with Tennessee Higher Education Commission Policy A 1.0, Section 1.0.5A, this letter signifies my support for the development of the **M.S. in Biomedical Sciences** at Middle Tennessee State University. MTSU's Board of Trustees has already approved the program as a "Degree Under Consideration."

The Board and I believe that the addition of the 30-credit hour, nonthesis degree program will enhance MTSU's portfolio and will strengthen the University's contribution to healthcare-related workforce demands of the Middle Tennessee region and beyond. The program, which is designed to be completed in less than a calendar year, will be housed in MTSU's College of Basic and Applied Science.

We appreciate THEC staff's consideration of this Letter of Notification and look forward to continued collaboration with your office.

Sincerely,

A handwritten signature in blue ink that reads "Sidney A. McPhee".

Sidney A. McPhee
President

CC: Dr. Julie Roberts, THEC Chief Academic Officer
Dr. Mark Byrnes, MTSU Provost

I. Overview

Institution Name

Middle Tennessee State University

Proposed Academic Program

Biomedical Sciences

Degree Designation

Master of Science (M.S.)

Proposed CIP Code

26.0102 – Biomedical Sciences, General

Definition: A general program that focuses on the integrative scientific study of biological issues related to health and medicine, or a program in one or more of the biomedical sciences that is undifferentiated as to title. Includes instruction in any of the basic medical sciences at the research level; biological science research in biomedical faculties; and general studies encompassing a variety of the biomedical disciplines.

Academic Program Liaison (APL) name and contact information

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Implementation Date

Proposed implementation date (semester and year) when students will enroll in the proposed academic program

May 2025

II. Background

Background Concerning Academic Program Development

There has been a continued increase in demand for qualified individuals in the healthcare workforce that current supply has not satisfied. At the same time, competition in recent years has continued to increase for admission to medical schools, dental schools, and programs for other health professions such as physician assistant and pharmacist. It is now common for students to fail to gain admission on their first application to these professional schools and programs, but they can gain admission if they can improve the competitiveness of their application on a second submission. This has given rise to the common idea of a “gap year” spent improving aspects of their application. It has become evident that many MTSU students, particularly those that are first generation, naturalized immigrant, or permanent resident students, need further coursework due to difficult starts in college, language barriers, or the issues of balancing work and the demands of tough science coursework as they fulfilled pre-requisites for these programs.

Nationwide, second or even third applications are normal for these academic “late bloomers.” Students such as these typically enter post-baccalaureate Master of Science programs to increase the confidence of admissions committees in their academic preparedness for health professional schools and programs. These are also the same groups of students that are highly likely to return to areas near where they earned undergraduate and post-baccalaureate degrees to practice, often committing to work in medically underserved communities. The tremendous need for healthcare workers in the numerous underserved areas of Tennessee makes such a program beneficial to the state as a valuable investment in the growth of the healthcare workforce. The availability of these programs is growing; however, currently in Tennessee all the programs providing the same focus are offered by private schools and are often deemed unaffordable by students at public universities like MTSU. It is important to note there are similarly named programs at two public institutions in the state, but the career focus is primarily research-related, which is different from the primary focus of this proposed program. The need for a public-supported post-baccalaureate M.S. program in the State of Tennessee to aid the movement of qualified students into professional schools, and thus the healthcare workforce, is evident. The demand for these programs is rising. This creates a unique opportunity for the program. MTSU’s central location and proven track record in pre-health professional preparation for diverse, first generation, veteran, and immigrant students make MTSU a good fit for a public, post-baccalaureate M.S. program focused on pre-health professional students.

This program can also contribute directly to workforce development in many of the supporting areas of healthcare, which also are facing increased demand for employees due to growth of the overall healthcare industry. This would include pharmaceutical research and sales, clinical research and clinical trial coordinators, biomedical and biotechnology research, and forensic science testing among other jobs and careers. Numerous diagnostic positions are required to support modern healthcare, and these workers are also in demand. Although this type of lab work is more typically filled by those in standard, thesis-based research M.S. degree programs, the proposed program can also serve this need by focusing electives on lab and technique-based courses, of which many are available. It will enable students to graduate more quickly and still be competitive for the same types of positions. Both the Chemistry and Biology Departments

receive numerous requests for applicants to these types of positions every year, in addition to the many that are normally advertised. As a result, the proposed program has both direct workforce development, as well as the indirect workforce development of helping students gain admission to pre-health professional programs.

Purpose and Nature of Academic Program

This program would be the only public option in the state of Tennessee for a nonthesis M.S. degree in Biomedical Sciences aimed to prepare students either for professional school or direct entry into the workforce. This program should help pre-professional students increase their competitiveness for medical, dental, or pharmaceutical schools, or physician assistant programs. It may even be helpful for those vying for positions in veterinary colleges or physical therapy programs. It is also very appropriate training for those interested in clinical trial research, becoming a clinical research coordinator, or entering pharmaceutical sales. With appropriate selection of lab-based electives in either their undergraduate or graduate program, these M.S. graduates would be well-suited for the growing number of healthcare and biotechnology support jobs, including as lab technicians, medical diagnostics, and even pharmaceutical development, testing, and sales. Although other degree programs can lead to employment in these areas, the proposed program at MTSU would be shorter (10 months), avoid the uncertainty of a research and thesis-based program, and be focused solely on science, without the business courses found in a Professional Science Master’s program. All of this would make it an attractive option for certain student populations that would help to quickly move them into the workforce.

This degree will provide a high quality, course-heavy, non-thesis program of study designed for completion in 10 months. The 30-credit hour curriculum will consist of a 16-credit hour core of foundational courses (physiology, biochemistry, and cell and molecular biology) with opportunities for electives based on the individual student’s career plan. The program will be offered in a traditional, face-to-face format in order to maximize one-on-one advising and interactions, since it is anticipated that each student will have their own unique needs and goals. Initially, one new seminar course will need to be created and implemented. Other course offerings may need to increase to accommodate a larger student population.

Degree Component	Hours
Program Core	16
Electives	14
	30

Alignment with State Master Plan and Institutional Mission

The Master Plan for Tennessee Postsecondary Education 2015-2025¹ is a road map for the enhancement of higher education within the state over the next decade with the primary goals of “increasing the educational attainment level of Tennesseans, while also addressing the state’s economic development, workforce development and research needs.” If approved, the M.S. in Biomedical Sciences will align with the goals of the State Master Plan and associated components of its organizing framework in the following ways.

- *“acknowledg[ing] the critical need for academic programs of distinction at the graduate and professional level to fully address Tennessee’s economic development, workforce, and research needs”*

The population of Tennessee is expected to grow by ~12% between 2015 and 2025.² This growth will be accompanied by a concomitant and proportional increase in the need for healthcare services of all types. This need will be particularly pressing in Middle Tennessee and the greater Nashville area, where counties are projected to grow at an even faster rate (e.g., ~25% increase in Rutherford County). In preparation for this, the Tennessee Health Services and Development Agency has authorized expansion of area hospitals, including a \$47 million enlargement of Saint Thomas Rutherford in Murfreesboro³, increasing the capacity of the hospital from 286 to 358 beds. A further expansion to a total of 416 beds is underway and slated for completion by 2024.⁴ Additionally, Vanderbilt and Ascension St. Thomas are planning for a new 42 bed hospital in Rutherford County, likely opening in late 2025.⁵ Beyond basic facilities, a similar push will also be required to train and recruit healthcare professionals and associated support personnel in the area. The Biomedical Sciences M.S. program will help to address this need by preparing Tennessee graduates for acceptance into medical, dental, pharmacy, and other professional schools as well as preparing diagnostic and pharmaceutical support personnel. Many of these students will seek employment in the region after completing their programs. Graduates of the M.S. program that elect not to continue to a professional program will have developed a background in biochemistry, cell and molecular biology, and related disciplines, which would make them suitable candidates for biomedical research Ph.D. programs or employment in private sector career paths such as those available in pharmaceutical, biotechnology, and medical diagnostics areas.

- *“minimized redundancy in degree offerings” and by “recognize[ing . . .] historically underserved (adults, low income, academically underprepared, nonwhite) student populations worthy of focused policy and programmatic attention throughout the coming decade”*

There are a small number of existing post-baccalaureate premedical programs at private institutions (e.g., Lincoln Memorial University and Meharry Medical College) in Tennessee; however, these can be prohibitively expensive for low-income students, and there are currently no public universities in Middle Tennessee offering an equivalent program. Of the current student body at MTSU, 36% are underrepresented minorities, and 95% of students receive financial aid.⁶ MTSU also has the largest Adult Degree Completion Program of its kind in the state to assist armed service veterans and adults.⁷ Other public universities such as Tennessee State University, Austin Peay University, and Tennessee Technological University have similarly large percentages of underrepresented and low-income students. For these reasons, the Biomedical Sciences M.S., the first of its kind in the area, would be ideally positioned to meet the needs of historically underserved student populations.

The proposed M.S. in Biomedical Sciences will also help MTSU work towards the first and arguably most important goal of its Academic Master Plan⁸, the advancement of *“academic quality through excellence in teaching.”* A pathway to achieving the goals of

the MTSU academic master plan is outlined in three strategic directions. As part of Strategic Directions 2 and 3, MTSU has committed to

- “[D]evelop innovative, interdisciplinary undergraduate and graduate programs” and “[E]ncourage and support innovative programs.”

By its very nature, the M.S. in Biomedical Sciences will be interdisciplinary and will be operated by MTSU Biology and Chemistry faculty with courses covering cell and molecular biology, cell metabolism, physiology, and biochemistry. The continuing success of the MTSU Molecular Biosciences Ph.D. program provides precedent that interdepartmental interdisciplinary programs can be developed and sustained at MTSU.

Institutional Capacity to Deliver the Proposed Academic Program

This program will consist primarily of existing courses within the College of Basic and Applied Sciences; therefore, it will not require significant additional resources. Rather, it will have a positive impact on graduate enrollments in these existing courses and allow them to be offered more frequently, benefiting students in other programs. With more than 75 full-time faculty in the departments of Biology and Chemistry and existing bachelor’s, master’s, and Ph.D. programs, the College has the necessary resources to successfully deliver this degree. This program is unlikely to negatively impact enrollments in existing thesis-based, research-oriented M.S. programs in biology or chemistry as it has a distinctly different focus and will attract a different type of student. The purpose and intensity of the proposed program is also quite different from the two-year M.S.P.S. programs offered by the College of Basic & Applied Sciences, which contain a significant number of business courses as a core requirement.

Existing Programs Offered at Public and Private Tennessee Institutions

In terms of degrees with similar names and/or CIP codes, there are only two at public institutions in Tennessee. ETSU has a Biomedical concentration within their MS in Biology. It is a thesis-based program designed to prepare students for research in the Biomedical area or for doctoral work. The publicly available data does not separate degrees by concentration, so the data from the last three years are for all concentrations of the MS in Biology. UTHSC also offers an M.S. in Biomedical Science with a concentration in laboratory research and management. Again, it is a two-year program that is designed specifically to prepare students only for future employment in research, clinical labs, or lab management.

All other programs are at private institutions. Meharry Medical College has a similar M.S. in Health Sciences, which is designed for a similar purpose and is one year in length. It has seen considerable growth since its creation in 2010. Lincoln Memorial offers three related programs, with the Anatomical Sciences concentration being a similar non-thesis degree program. Lipscomb University has a multi-track MS in Biomedical Sciences, that has seen steady enrollment. Union University had a very small MS in Biology program in which one track is non-thesis based, but that was discontinued in 2001. Finally, Vanderbilt has a new (fall 2018) MS in Biomedical Sciences program that is an 18-24-month program geared more toward

research.

Institution	Program	Most recent year	Prior year	Prior year
ETSU ⁹	MS in Biology ^a	17	12	11
UTHSC ¹⁰	MS in Biomedical Science ^b	3	7	1
MeHarry Medical College ¹¹	MS in Health Sciences ^c	122	86	46
Lincoln Memorial University ¹²	MS in Biomedical Sciences, Anatomical Sciences, and Veterinary Biomedical Sciences ^d	60	97	85
Lipscomb University ¹³	MS in Biomolecular Sciences ^e	33	33	24
Union University ¹⁴	MS in Biology ^f	0		
Vanderbilt University ¹⁵	MS in Biomedical Sciences ^g	42	38	33

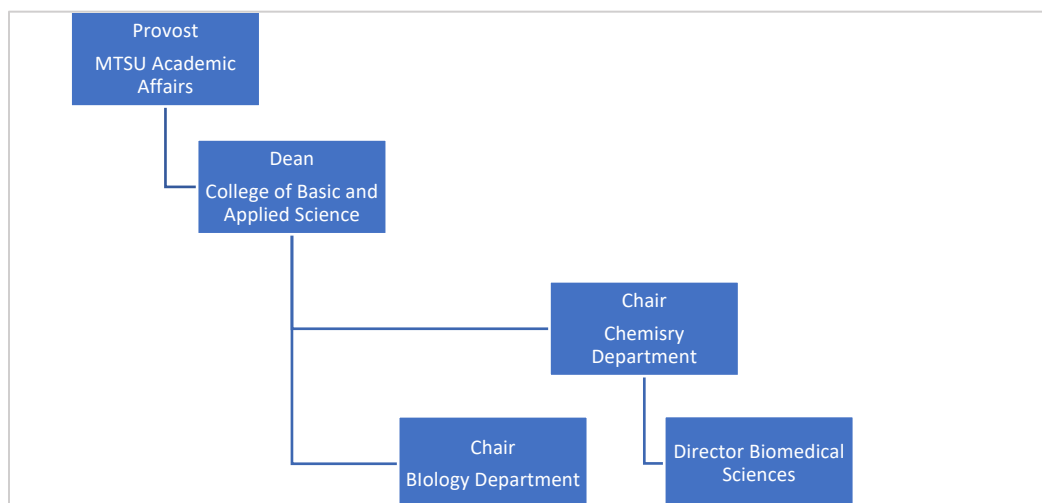
a. Data for all concentrations, with most recent year being 2018-2017. b. Data for all concentrations with the most recent year being 2022/2021. c. Most recent year 2021. d. Data for all three related degrees with the most recent year being 2021-2022. e. Data for three concentrations with the most recent year being 2022. f. Data for two concentrations, only one of which is non-thesis with data from 2019. g. Data for all five MS programs in the health area, only one of which is related to the proposed program with most recent data from 2022-2021.

Accreditation

The proposed program does not have a special accrediting body. The only notifications that will be required will be the standard reporting of new programs to SACSCOC.

Administrative Structure

The M.S. in Biomedical Science will be an interdisciplinary program including faculty from the Departments of Biology and Chemistry in the College of Basic and Applied Sciences. Faculty will remain part of their home departments while teaching courses in this program. There will be a program director and an administrative assistant/advisor, with the program director reporting to the chair of the Department of Chemistry, since this department houses the undergraduate pre-health programs and advising.



III. Feasibility Study

Student Interest

Interest and potential demand for this program is healthy and was examined from four perspectives: surveys of current MTSU students; national trends and state interest; local and regional need/demand; and potential “feeder” institutions.

MTSU Survey: A survey of current students in upper division biology and chemistry courses was taken in spring of 2022 to explore the level of interest in this program. To summarize, 339 students were surveyed. 266 of those students plan to go to a health professional school. Of those students, 59% said that they were very or somewhat likely to “enroll in a one-year, non-thesis master’s degree program at MTSU that is specifically designed to increase your qualifications for professional school.” Even if only the “very likely” students were to enroll, that would be 71 students. This number does not include all students at MTSU and does not include any students from other regional schools. These preliminary survey results indicate that this program has the potential for high enrollment.

National Trends and State Interest: M.S. degree trends and interest comes from two sources. First, data from the Integrated Postsecondary Education Data System (IPEDS) at the National Center for Education Statistics in the U.S. Department of Education indicated a doubling of M.S. programs in Biomedical Sciences in the U.S. between 2011 and 2018. Additionally, the number of Biomedical Sciences M.S. degrees awarded more than tripled during this same period. At the program level, there was also a significant increase in the number of degrees awarded per program, which increased from approximately 20 to 30 per year during the same timeframe.¹⁶ Second, there are clear trends of increasing applications to medical schools from Tennessee residents accompanied by a steady rate of applications from Tennessee residents to dental schools, as indicated by applicant data from the American Association of Medical Colleges and the American Dental Education Association.¹⁷

Local and Regional Demand

At the state level, reports have noted the importance of the healthcare workforce. Occupational projections through 2028 indicate there will be over 30,000 healthcare practitioner and technical opportunities in Tennessee.¹⁸ There are several other sources that support this type of growth in Tennessee and specifically the middle region of the state. Currently, according to the Nashville Health Sector Research Report¹⁹, Nashville is home to more than 500 health care companies; data indicate that “121,027 persons employed in the Nashville MSA” (p. 15) are in direct healthcare services. Another number to support local demand in the report is the expected increase in employment opportunities of 67,000 resulting from new jobs, retirements, etc. from 2018-2023.

Additionally, the 2018 report by the Tennessee Department of Labor & Workforce Development²⁰ makes it clear that ambulatory healthcare services (outpatient healthcare) and hospitals are key industries in the state and specifically in Middle Tennessee. Both ambulatory healthcare services and hospitals are included in the top 5 industries in the state, with the healthcare and social assistance industry employment growing 8% between 2013 to 2018.

Hospitals were included in the list of industries growing in number of establishments with a 16.1% growth rate in 2018. Ambulatory healthcare services and hospitals are listed as employing 154,069 and 146,409 in the state, respectively; this is an increase of 1.3% over 2017. Both ambulatory healthcare services and hospitals are also listed in the top 10 industries in all local workforce development areas of Middle Tennessee accounting for a total of 123,168 jobs broken into 62,408 employed in ambulatory healthcare services and 60,760 employed in hospitals.

In biomedical sciences, there is a clear need and demand within the state for individuals with master’s level training. The Tennessee Departments of Labor & Workforce Development’s report, “The Demand for STEM Occupations in Tennessee” lists medical scientists as an occupation expected to grow 22% within the state between 2016-2026, which, as previously noted, is greater than the 10% increase expected nationwide.²¹

Collectively, these data indicate that healthcare and biomedical jobs are an important component of the regional and statewide economy. Growth in this area will likely continue for the foreseeable future, increasing the need for appropriate health professional training in the region.

Employer Demand

The primary driver of this degree program is to prepare students to competitively enter health-related professional schools and subsequently impact the healthcare workforce, which will be discussed in the following paragraphs. As noted in the Academic Supply and Occupational Demand Report from THEC, healthcare is ranked as one of the six occupational groups in high demand.²² Additionally, there are opportunities for students with this graduate degree from MTSU in the broader and growing areas of biomedical research, healthcare diagnostics, and related fields. As previously noted, the Tennessee Department of Labor and Workforce

Development expects the need for medical scientists and workers in the healthcare industry to have a “bright future” with high projected rates of growth for associated careers.

As it relates to professional school opportunities, key workforce rates to consider are those for physicians, dentists, pharmacists, and even veterinarians. For all categories, the prospects for employment are strong as indicated in the MTSU BERC report (see Appendix A). Currently, the Tennessee Department of Labor and Workforce Development data shows that each of these groups has a very low supply/demand ratio within the state, indicating few applicants for many jobs. These ratios range from 0.00 (2 candidates for 917 jobs) for physicians to 0.71 for pharmacists; dentists and veterinarians both have ratios of 0.13.²³

The Nashville metropolitan area, including Davidson, Rutherford, and Williamson counties, is the fastest growing metropolitan region in Tennessee with a growth rate of 15.56% for 2010-2018.²⁴ A corresponding growth in terms of healthcare needs and the need for more healthcare services and professionals would be expected and can actually already be seen by the expansion of Saint Thomas Rutherford hospital from 286 to 358 beds.³ Further expansion of Saint Thomas Rutherford and the addition of a Vanderbilt/Ascension hospital in the near future bear testimony to an accelerating trend.^{4,5} Another indicator of the need for healthcare professionals in the state is the fact that the majority of Tennessee is classified with whole or partial medically underserved populations or areas.²⁵ The demand for healthcare professionals, particularly physicians, across the state is great.

Demographics are also important in considering the future need for more physicians in Tennessee. The AAMC Tennessee Physician Workforce Profile shows that a third of practicing physicians in the state are over the age of 60.²⁶ While growth in the number of healthcare professionals is clearly dependent upon growth in capacity at the professional schools, that growth is also dependent upon the pool of highly qualified applicants. This last step is the one in which the proposed program can be of great benefit, particularly to the large population of first generation or non-traditional college students. These individuals frequently encounter challenges early in their college careers that effectively preclude them from successfully entering a healthcare professional school directly from their undergraduate degree, which can discourage them from continuing their chosen path without a clear, simple, affordable, and short option to be more competitive. A study from 2012 using AAMC data shows that successful medical school graduates that also graduated from post-baccalaureate pre-medical programs are more demographically diverse and are more likely to consider practicing in underserved areas.²⁷ Additionally, the AAMC workforce report for 2019 indicates that 66.7% of the physicians practicing in Tennessee completed either undergraduate or graduate medical education in Tennessee.²⁸ Thus, a post-baccalaureate pre-medical program at a public university in Tennessee with a diverse population is likely to help fill the needs of medically underserved groups/areas in the state and retain more physicians in Tennessee for its growing population.

In addition to the enhanced need for health professionals in Tennessee, and Middle Tennessee in particular, the overall growth in the healthcare industry has boosted the demand for qualified individuals in additional jobs and careers. Many of these are currently filled by graduates from MTSU’s B.S. programs in biology, biochemistry, and chemistry. Graduates of the M.S. in

Biomedical Sciences program will be better qualified and more competitive for available positions in these areas. The M.S. degree will also raise the starting salary of successful individuals in these fields. Some of the more common positions where the degree can increase competitiveness of an applicant include pharmaceutical sales, clinical research or clinical trial coordination, medical testing, and forensic sciences and forensic science testing.

Career opportunities available upon completion of this degree include research in biomedical sciences in nearby centers of research like Vanderbilt University. Biotechnology companies also often engage in biomedical research. A recent search of common job sites (glassdoor.com, indeed.com, ziprecruiter.com) supports the report on STEM careers from the Tennessee Department of Labor and Workforce Development by highlighting numerous opportunities in suitable positions for these graduates. The salary ranges for these careers are broad, but many of the careers, such as clinical trial coordinator or pharmaceutical sales representative, have annual salaries in the \$50,000 to \$123,000 range (www.salary.com; careerexplorer.com).

Community and Industry Partnerships

This proposed M.S. in Biomedical Sciences has document support from health professional programs, but also from area healthcare related businesses. Letters from the Quillen College of Medicine at ETSU and the Physician Assistant Program at MTSU, as well as the Vanderbilt School of Medicine, Aegis Sciences, Volunteer Botanicals, and Life Sciences TN can be found in Appendix B.

IV. Enrollment and Graduation Projections

Projected attrition is based on the 80-90% graduation rates observed in the M.S. programs in Chemistry and Biology and the M.S. in Professional Science programs at MTSU.

Projected Enrollments and Graduates				
Year	Academic Year	Projected Total Enrollment	Projected Attrition	Projected Graduates
1	2025-2026	15 (11/4)	2	9
2	2026-2027	17 (11/6)	3	14
3	2027-2028	18 (12/6)	3	14
4	2028-2029	20 (13/7)	3	15
5	2029-2030	22 (14/8)	4	16

Note: For projected enrollment, the total of one-year and two-year students is listed first, with the numbers in parentheses being one-year/two-year students.

V. Projected Costs to Deliver the Proposed Program

Faculty and Instructional Staff

Beginning in Year 1, support for up to four adjuncts to cover up to 32 workload units per year are being budgeted. The cost (\$800 per workload unit) is based upon the standard adjunct pay rate at MTSU. These adjuncts will be needed in the Chemistry and Biology Departments to cover introductory level courses so that existing faculty can teach more and/or larger sections of the graduate courses for this program. These adjuncts will also enable course release time for the

coordinator to enable recruiting, advising, mentoring, and liaison activities with area colleges and health programs. Additionally, a summer stipend (\$5,000) for the program coordinator is budgeted based on the standard rate for graduate program coordinators at MTSU. The annual total is \$25,600.

The program will require an existing faculty member to assume responsibilities for the Graduate Program Director role to recruit new students, advise and meet with students, and organize the program throughout the academic year. Because the program is a two-year program that will require continuous recruitment, projections include three hours of course reassignment in the fall and spring semesters, and a stipend during the summer. The annual cost for the Graduate Program Director is equivalent to hiring an adjunct to teach two courses a semester at \$2,400 a course and up to \$5,000 for a summer stipend for the graduate director, for a total annual cost of \$14,600.

Non-Instructional Staff

Academic Affairs will cover one-half of an existing employee's compensation going forward. Her duties with that effort will be devoted to this program and to related activities with the undergraduate pre-professional program. If she has any balance of time, she will utilize it to do additional related work, including connecting UG STEM students with research opportunities in the College. The annual cost (including benefits) of her half-time effort to Academic Affairs will be around \$40,000. The cost share will begin on 09/01/2024.

Graduate Assistants

No graduate assistants will be requested for this program.

Accreditation

There is no professional accrediting organization for this program and SACSCOC notification will be handled through the existing coordinator at MTSU, so no expense is anticipated.

Consultants

As part of the THEC approval process, the program will require an external reviewer in the planning year, with a one-time cost estimated at \$4,000, which includes a \$1,500 stipend and travel costs.

Equipment

No special equipment beyond that already existing at MTSU is required.

Information Technology

Existing information technology systems are perfectly adequate for this program.

Library Resources

No additional resources beyond those already supporting science and health related programs at MTSU are required.

Marketing

One-time and recurring marketing costs are included for design and printing of rack cards,

design of a digital flyer, a tablecloth and pullup banner for career fairs, advisor handout cards, as well as postcard mailers. The initial cost is \$2,000, and the smaller annual amount of \$500 is for restocking of consumable items.

Facilities

Existing facilities in terms of office space, laboratories, and lecture space are adequate for this program.

Travel

Funds for either the coordinator and/or the staff position to visit area colleges for recruiting purposes are budgeted at \$2,000 annually.

Other

Miscellaneous expenses associated with operating a program, such as office supplies, and postage are included in this budget item valued at \$2,000 annually.

VI. Projected Revenues for the Proposed Program

Tuition

Revenue for this program will come from tuition paid by the students enrolled in the program. For the purposes of these calculations, it is assumed that all students are in-state and are based on the 2022-2023 values for tuition and fees with no projected increases. It is assumed that there will be a mix of one-year (taking 15 credit hours per term) and two-year students (taking 7-8 credit hours per term), with the majority opting for the faster completion allowed by the 10-month (two-term) option. This works out to an average of 25 credit hours (over two terms) per student. The cost for 12 credit hours in one semester is \$6,372 and the cost for 13 credit hours in the other semester is \$6,476, for a total student tuition and fee cost in one-year of \$12,848.

Grants

None anticipated.

Other

None anticipated.

References:

1. Postsecondary Attainment in the Decade of Decision: The Master Plan for Tennessee Postsecondary Education 2015-2025. Tennessee Higher Education Commission.
2. Population Projections for The State of Tennessee, 2010-2030. A joint publication of the Tennessee Advisory Commission and Intergovernmental Relations and The University of Tennessee Center for Business and Economic Research, June 2009.
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FEASIBILITY STUDY



M.S. IN BIOMEDICAL SCIENCES

March 2022

Steven G. Livingston, Ph.D.

**MIDDLE
TENNESSEE**
STATE UNIVERSITY.

JONES COLLEGE OF BUSINESS
Business and Economic Research Center

We evaluate the feasibility of a Master of Science in Biomedical Sciences program at MTSU. We look at student demand to enter such a program, and then at the employment prospects for those leaving with a degree.

A stated objective of the program is to assist students in strengthening their portfolios for acceptance into doctoral programs in medicine, dentistry, veterinary medicine, and the like. We will thus focus upon this pathway. But we will also look at general interest in biomedical sciences programs and the job opportunities for degree holders who do not later attend a medical school.

Part I

Enrollment Trends and Student Interest

Figure 1 shows the steady growth nationally of biomedical master's programs over the past decade. Over that time, the number of programs has doubled and the number of degrees awarded has trebled. Student demand is robust. There are about 2.6 applicants for a master's in this field per accepted student. This has increased from 2.0 in the first part of the last decade.¹ Interest in this degree is clearly rising.

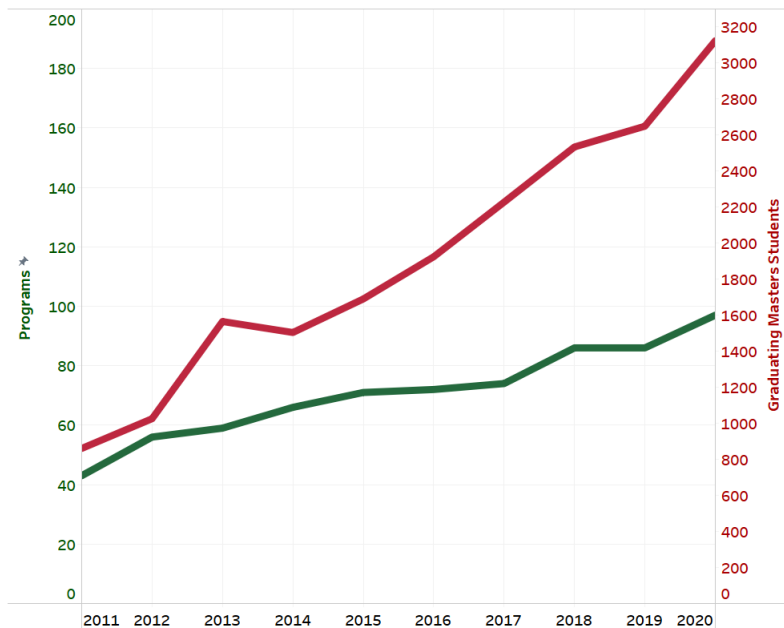
The number of degrees awarded per program shows a similar trend, as seen in Figure 2. In 2020, the modal program awarded thirty-two master's degrees. This indicates that on average these programs are fairly sizable and growing.

A targeted audience of the MTSU program is students wishing to enter medical doctorate programs. Figure 3 shows the number of state applicants to M.D., Dentistry, and Veterinary programs in recent years. We can see that the number applying to M.D. programs is rising slowly, while applications to dental programs is holding steady at around 200 Tennesseans per year. The Veterinary field does not publish exact counts of the geographic origins of applicants, but using the approximate data it does give, we estimate that the number of Tennesseans applying to veterinary school has risen from about 200 in 2010 to 326 in 2020.²

¹Calculated from IPEDS data. National Center for Education Statistics, IPEDS Data (<https://nces.ed.gov/ipeds/use-the-data>)

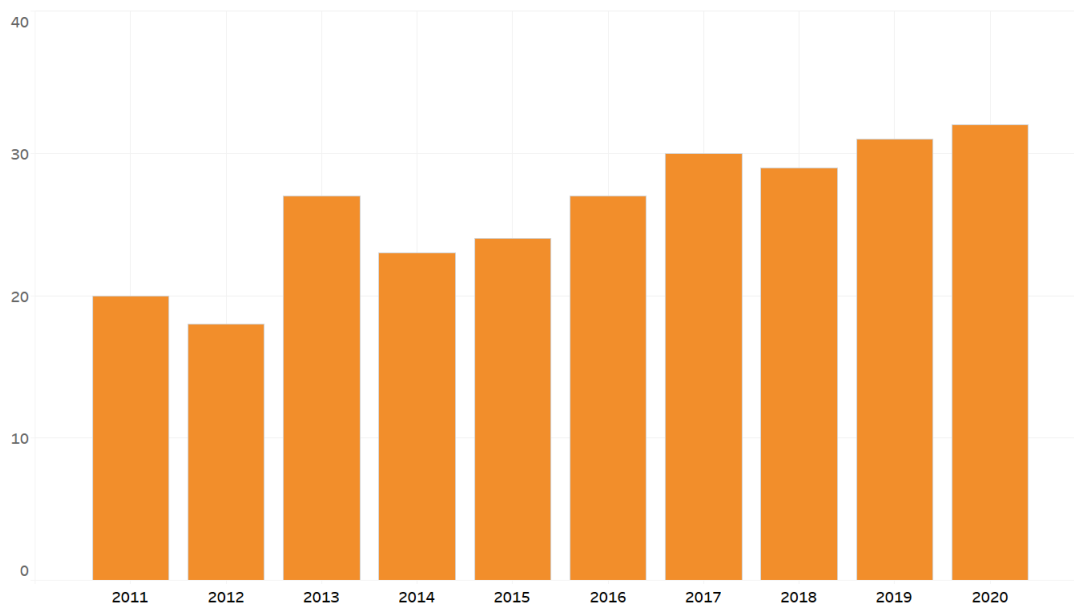
²The American Academy of Veterinary Medicine reports total number of national applicants and rough figures on geographic origins of acceptances. We thus calculate Tennessee applications from the two. https://www.aavmc.org/knowledge-center/?_resources_interest=veterinary-education year

Figure 1: Biomedical Master's Programs and Degrees Awarded



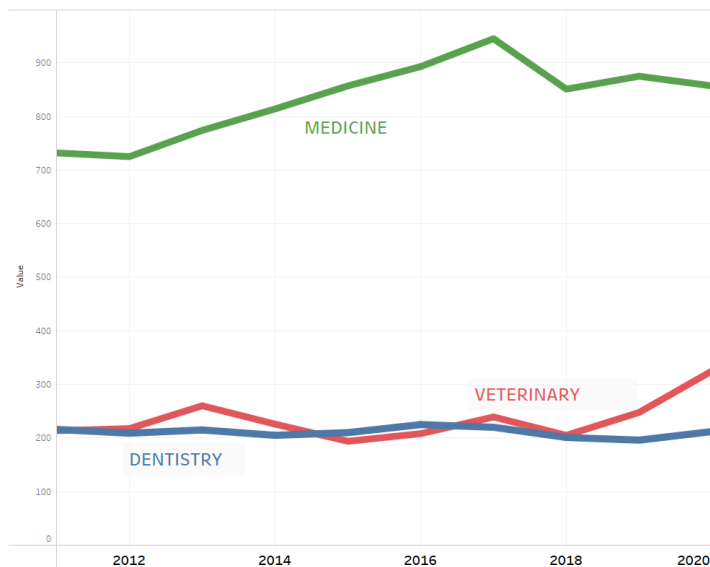
Source: National Center for Education Statistics, IPEDS Data (<https://nces.ed.gov/ipeds/use-the-data>).

Figure 2: Degrees Awarded per Program



Data from the National Center for Science and Education Statistics (<https://ncesdata.nsf.gov/ids/gss>)

Figure 3: Tennessee Applicants to Medical and Dentistry Doctorates



Sources: American Dental Education Association (<https://www.adea.org/data/students/>), the Association of American Medical Colleges (<https://www.aamc.org/data-reports/students-residents/interactive-data/2019-facts-applicants-and-matriculants-data>), the American Academy of Veterinary Medicine ([https://www.aavmc.org/knowledge_center?_resources_interest=veterinary-education year](https://www.aavmc.org/knowledge_center?_resources_interest=veterinary-education%20year)).

Well over 1,000 individuals living in Tennessee apply to one of these three programs each year. There are, of course, other, smaller medical doctorates (ophthalmology, etc.) that would add to this total. Data trends show no reason to expect this to reverse.

Tennessee Biomedical/Preparatory Master’s Programs

Tennessee currently has but a few programs similar in purpose to that of the proposed MTSU program. Lipscomb University offers a Master’s in Biomolecular Science that it characterizes as a “premedical post-bac program.”³ It does not publish enrollments, but it averages awarding 25 degrees per year (since 2015).⁴ In 2018, Vanderbilt University began an M.S. in Biomedical Sciences aimed at “[s]tudents seeking to increase their competitiveness for admission to graduate and professional schools.”⁵ It enrolled 10 students in its inaugural year, and 16 students in 2019-20.⁶ Virtually all of the students in the Vanderbilt program obtain the M.S. degree. Union University offers a Master’s of Science in Biology with a pre-professional track for those wishing to prepare for a more advanced health-care program. However, the Integrated Postsecondary Education System records no degrees awarded in it for at least the past three years. Finally,

³<https://www.lipscomb.edu/academics/programs/biomolecular-science>

⁴<https://www.lipscomb.edu/sites/default/files/2020-07/student-achievement-2020.pdf>.

⁵<https://gradschool.vanderbilt.edu/postbac/>

⁶<https://news.vumc.org/2019/09/09/year-two-for-masters-program-in-biomedical-sciences/>

Lincoln Memorial offers a program in biomedical sciences that is aimed at enhancing a student's "academic qualifications." Lincoln does not publish its program enrollments. In 2020, it awarded 58 master's degrees in the National Center for Education Statistic's category of miscellaneous ("other") biology or biomedical degrees. It's very difficult to ascertain how many of these were in biomedical science but we would presume that it was a substantial number of these. Institutions in Tennessee thus combine to produce 60 to 80 master's degrees per year directly in this area (the range mostly due to lack of knowledge about the Lincoln Memorial program).

The Meharry Medical Center has a large master's program in Health Sciences. It aims to "enhance student preparation for professional careers in health sciences."⁷ This is a much broader purpose than that of the proposed MTSU program or the others noted above. It's unclear how many, if any, of its enrollees are in fact preparing to apply for a medical doctorate. But for purposes of comparison, the program has expanded considerably, tripling the number of degrees awarded since 2015. For academic year 2021-22, it admitted 126 students out of 272 applicants.⁸

All of the above programs are at private institutions. The state has two public university M.S. programs in biomedical sciences, if we include ETSU's biomedical concentration within its M.S. in Biology program. Both are relatively small. These programs, however, are not intended for students wishing to prepare for a medical doctoral program. ETSU's program is focused upon preparation to do research, though it notes the concentration may be of interest to those needing more preparation to be admitted into a medical school.⁹ ETSU does not annually report publicly enrollments or degrees by concentration, but when disclosed, total enrollment in the biomedical concentration is around ten students. In 2020 there were thirteen. ETSU graduated six students total in its M.S. in Biology in 2020. It typically awards between 10 and 15 M.S. degrees in Biology per year.¹⁰ The second program, at the University of Tennessee Health Sciences Center, is focused upon Laboratory Research and Management. Three students were attending in 2021.¹¹

In total, the state has three active master's programs similar to that proposed by MTSU. All are private, all are smaller than the national average. In addition, there is the partially overlapping program offered at Meharry.

⁷<https://home.mmc.edu/school-of-graduate-studies-research/>

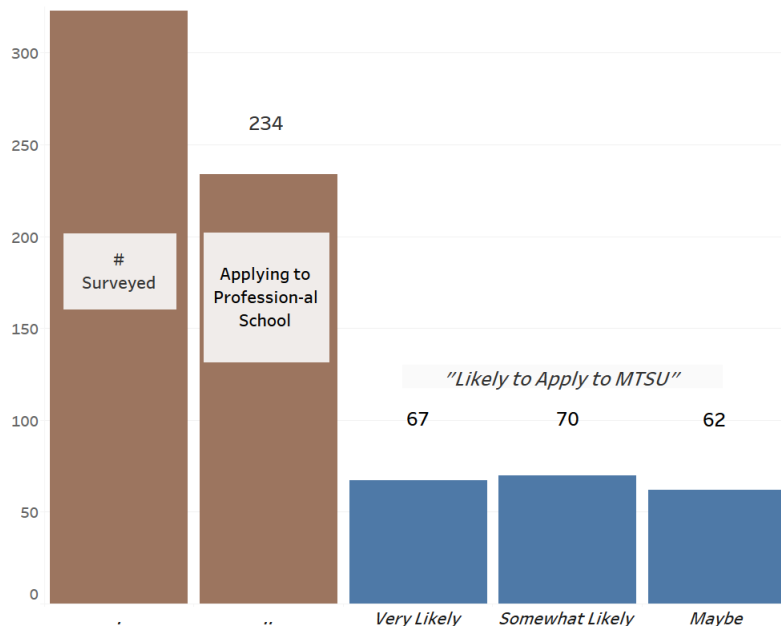
⁸Numbers from the Meharry Fact Book, various years.<https://home.mmc.edu/wp-content/uploads/2022/02/Fact-Book-2021.pdf>

⁹https://www.etsu.edu/cas/biology/academics/ms_biomed.php

¹⁰None of these degrees are credited to the biomedical concentration in IPEDS though it is unclear if this is because ETSU does not place them under the appropriate CIP code. <https://www.etsu.edu/winsv-ir/fact/factbooks.aspx>. See particularly the factbooks of 2018 and 2020 and <https://nces.ed.gov/ipeds/datacenter/Data.aspx>.

¹¹<https://app.powerbi.com/view?r=eyJrIjoiNTAyYTBmYzItMWRIMS00YmFhLWE4OTQtMzQ0N2EwZDdhNTI4IiwidCI6IjUxNTgxM2Q5LTcxN2QtNDVxZC05ZWVhLTlhYTE5YzA5ZDZmOSIsImMiOiJN9>

Figure 4: MTSU Undergraduate Survey Results



1 MTSU Student Survey

In Spring 2022, a survey of student interest in this program was conducted. The survey included students in five different upper division biology and chemistry courses.¹² Of the 323 surveyed students, 234 indicated they intended to apply for admission to a health professional school upon obtaining their undergraduate degree. Their responses are shown in Figure 4. Fifty-nine percent (n=137) indicated they would be somewhat or very likely to apply to the MTSU program if they did not gain admission. If we include those responding “maybe,” over eighty percent of the surveyed students had some interest in the MTSU program. The survey responses showed that location and affordability were key factors in the student responses. Even the enrollment of a modest percentage claiming they would be likely to apply would produce a substantial number of students.

The sizable national growth in students seeking this master’s, the steady number of state applicants into medical programs, the fact that Tennessee has only three other programs directly in this area, and the survey results all point in the same direction: that this program would likely attract a significant number of students. Based upon the survey, the dearth of alternatives, the lower tuition than these alternatives, and the national average program size, enrollment in the MTSU program should be expected to exceed the national program average of thirty-two entering students per year.

¹²The courses were Immunology, General Physiology, Cellular and Molecular Biology, Organic Chemistry, Senior Seminar, and Biochemistry.

Part II

Employment

The proposed program is aimed at assisting admission to a doctoral health sciences program. However the M.S. degree itself is a terminal degree for purposes of employment. We thus examine both paths.

It is likely no surprise that employment prospects are strong across almost all occupations requiring a medical doctorate (including veterinarians). The Tennessee Department of Labor and Workforce Development's "jobs4tn" website projects well over 400 job openings annually in them.

In fact, the number of advertised jobs vastly exceeds those searching for them. As examples, in March 2022, there were 190 job openings for family physicians with one candidate available. There were eighty-eight available jobs as dentists and two candidates available while 125 veterinarian positions competed for five candidates.¹³ Across the board, securing employment is almost certain. The practical obstacle is gaining a seat in a relevant medical school, which, after all, is the aim of the proposed program.

But what is the market for those with an M.S. in Biomedical Science that do not then enter a medical program? The wide range of career options available, which extend from laboratory work to becoming a medical writer, make this a bit difficult to summarize. In addition, the United States Department of Labor Statistics does not have an occupation code for Biomedical Scientist, meaning employment in the field is not tracked. Nevertheless, both the U.S. and the Tennessee Department of Labor and Workforce Development list the closely related "medical science" occupation as having a "bright" employment outlook.¹⁴ Tennessee predicts a twenty-two percent increase in employment over the years 2018-28, while the U.S. sees seventeen percent growth per year over 2020-30.¹⁵ Twenty-five percent of these jobs require a master's or are filled by someone with a master's. The state's Department of Labor and Workforce development expects there to be 210 job openings in this field annually in coming years. In March 2022, the state had only four candidates for 42 open positions.¹⁶

THEC's most recent Academic Supply and Occupational Demand study similarly places the health sciences cluster among the state's top in-demand occupations.¹⁷ That study estimates sixteen percent growth for this cluster over 2020 to 2030. The estimates of both THEC and the state substantially outstrip the supply of Tennessee students

¹³These figures are as of March 7, 2022. <https://www.jobs4tn.gov/vosnet/analyzer/drill/drill.aspx?enc=e7AKr7bjUGRBEdrMte14UU/yogJNLO8Pv84AeQ47o7RYOsKziYKrbxJIUPWYQhnk>

¹⁴The U.S. evaluation is available at O*NET, <https://www.onetonline.org/link/summary/19-1042.00>. O*Net does not have a job classification entitled "Biomedical Scientist." Note that medical science is a distinct occupation from medical doctorates.

¹⁵The growth rates for similar occupations, such as biological technicians, are very similar. E.g. <https://www.onetonline.org/link/localtrends/19-4021.00?st=TN&g=Go>

¹⁶March 6, 2022. <https://www.jobs4tn.gov/vosnet/lmi/profiles/profileDetails.aspx?enc=e7AKr7bjUGRBEdrMte14UU/yogJNLO8Pv84AeQ47o7Tom9OikYPm3HhcTQBWcV9oX4ihyr0r7zGnYfjFDN0eSQ==>

¹⁷Tennessee Higher Education Commission, *Improving the Pipeline for Tennessee's Workforce: Academic Supply and Occupational Demand Report 2022*, <https://www.tn.gov/thec/research/supply-and-demand.html>

graduating with biomedical science degrees.¹⁸

The conclusion is that students that completed an M.S. program in Biomedical Science are all but assured of a well-paying job if they are then accepted into a medical, dentistry, veterinarian, or similar doctoral program. If they chose not to pursue this route, or if they are unable to get into one of these schools, they will still enjoy solid job prospects given the strong employment growth in health care and the field of biomedical sciences.

Part III

Conclusion

An MTSU M.S. program in Biomedical Sciences would be only the fourth in Tennessee focused upon the training needed to enter a medical, dentistry, veterinarian, or similar school. It would be the first public institution with such a program. National trends, a student survey, and the size of the similar programs all suggest that it would attract thirty or more students per year. Graduates would assuredly find employment should they go on to a medical school. But even if they did not, employment prospects for those with an M.S. in Biomedical Sciences are good, and expected to get better. Indeed, the Tennessee Department of Labor and Workforce Development designates the cluster of occupations that include biomedical scientists as in “short supply.”¹⁹ From the data presented here, we conclude that this program is needed. It would be successful in gaining students and those students would enter a very favorable job market.

¹⁸<https://www.jobs4tn.gov/vosnet/lmi/LabSupplyDetails.aspx?geo=470100000&time=20180100&session=LABSUPPLY&subsession=99&clustercode=15.3110000&onelic=True> https://www.jobs4tn.gov/admin/gsipub/htmlarea/uploads/LMI/Publications/Tennessee_Long_Term_Outlook_to_2028.pdf

¹⁹For medical science, see: https://www.jobs4tn.gov/vosnet/lmi/profiles/profileSummary.aspx?session=occ_detail&valueName=occupation. But related fields are designated similarly.



March 17, 2022

Dr. Mark Byrnes
University Provost
MTSU Box CAB 110
Murfreesboro, TN 37132

Dr. Byrnes:

It is with great pleasure that I write a letter of support for the non-thesis MS Program in Biomedical Sciences at MTSU. This program will allow more specific, upper division coursework in Biology and Biochemistry to help better prepare students for a job in the workforce.

When Dr. Farone approached me about this idea, I was thrilled. As Director of Recruitment and University Relations for Aegis Sciences Corporation, I have hired hundreds of MTSU graduates in student worker, intern, and multiple full-time positions over the last 10 years. While the BS level students are impressive, the opportunity to give them additional knowledge and hands-on in the laboratory will give them more confidence and knowledge to transition into a high technology laboratory.

In our analytical chemistry positions, the additional training in GC-MS and HPLC would be beneficial for them as well as us. As chemists develop their skills, they advance their chance for promotions into other position at Aegis, and this would absolutely help them get an early start.

On the molecular side, over the last 2 years, Aegis has grown the BioPharma Laboratory from a team of 5 to over 500. In the last 2 months, we have promoted over 80 team members in this laboratory who had a higher skillset and knowledge of molecular techniques. The MS Biomedical Sciences program would provide more training in cell and molecular, as well as PCR experience that is extremely helpful in this particular laboratory at Aegis.

I have been very impressed by the training given to the students at MTSU. Over the last 12 years, I have been fortunate enough to work with many of the professors in the sciences through my work at Aegis as well as through joint efforts with the American Chemical Society – local and national. Any time I have immediate hiring needs, MTSU is always my first go-to. I have sincerely appreciated our partnership over the years and look forward to it continuing.

If I can provide additional information, please do not hesitate to contact me at kara.kasakaitas@aegislabs.com, or by cell at 615.715.0360.

Best Regards,

A handwritten signature in black ink that reads 'Kara M. Allen'.

Kara M. Allen KasaKaitas, RACR, ACSF
American Chemical Society Fellow
Director, Recruitment and University Relations, Aegis Sciences Corporation

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Solas Bioventures

Maha Krishnamurthy
University of Tennessee
Research Foundation

April 19, 2023

Tennessee Higher Education Commission
312 Rosa L Parks Ave
9th Floor
Nashville, TN 37243

To whom this may concern,

Our organization, Life Science Tennessee, is writing to you in support of Professor Scott Handy's proposal to create a one-year Master of Science program for Biomedical Sciences at Middle Tennessee State University.

Life Science Tennessee is a statewide member-led organization that comprises more than over 100 companies and organization across Tennessee and the United States. These members are researchers, manufacturers, service providers, and experts in the fields of biotechnology, pharmaceuticals, biomedical technologies, life system technologies, biomedical devices, nutraceuticals, cosmeceuticals, food processing, and environmental biology.

As Life Science Tennessee represents a collective voice of Tennessee's life science industry, we support professor Handy's proposed 30 credit minimum biomedical science program at Middle Tennessee State University. In addition, we support the program's goal to provide advanced educational preparation to individuals who seek to establish a career in life science-related positions in Tennessee.

Currently, Tennessee's life science industry has roughly 2,899 companies and employs more than 44,375 individuals with an average annual salary of \$104,420. These numbers are projected to continue to increase in the coming years, which is why we need more educational opportunities for students to fulfill our growing workforce demand (per 2022 *BIO Tennessee Impact Report*).

We hope you will support Professor Scott Handy's proposed Biomedical Science Master Program at Middle Tennessee State University.

Most sincerely,



Glenn Perdue
Chairman



Abby Totter
Executive Director

Physician Assistant Studies Program
College of Behavioral and Health Sciences
MTSU Box 55
1301 East Main Street
Murfreesboro, TN 37132
615-898-2900



Provost Byrnes,

Please accept this memo as a letter of strong support for the development of a Master of Biomedical Science Program here at MTSU. This master's degree is commonly used as a way for students who have not performed as well as they would have liked in their undergraduate work to show that they have the capacity to succeed in a rigorous medical program. This degree is often a steppingstone into different medical careers including Physician Assistant (PA).

As a current PA Program Director and Admissions Director for five years, I have seen the Biomedical Science master's degree on many PA applicants' applications. Applicants who perform well in a graduate program that encompasses several basic science courses are seen as more competitive as compared to someone who has not. Applicants with lower undergraduate GPAs often do not want to simply re-take undergraduate courses. The master's in Biomedical Science allows students to work towards an actual master's degree while increasing their basic science GPA which is often a more appealing option for them.

The interest in the PA profession has grown significantly over the years. All PA programs receive significantly more applications than their allocated spots. Often times applicants want to know how they can be more competitive, and one of the main reasons given to them is to increase their GPA, and more specifically, their basic science GPA. I feel that the development of a Master of Biomedical Science Program here at MTSU would fill a need for many prospective health care students. MTSU's high reputation for quality education combined with an affordable cost would make this program very appealing. The development of this program has my full support and the support of Physician Assistant Program here at MTSU. The MTSU PA program would undoubtedly benefit from the applicants who are successful in this program.

Sincerely,

A handwritten signature in black ink, appearing to read "Marie Patterson".

9-14-22

Dr. Marie Patterson, DHSc, MSM, PA-C

MTSU Physician Assistant Studies Program Director



March 14, 2022

To Whom It May Concern:

The Quillen College of Medicine at East Tennessee State University enthusiastically supports the new Masters in Biomedical Sciences program at Middle Tennessee State University. There are many medical school applicants who do not gain admission the first time they apply. Often times, they need to demonstrate their ability to succeed academically. Having this program at MTSU would be extremely beneficial for many reasons. Two being that MTSU is a state supported school and its location in the middle of Tennessee. MTSU also has the largest enrollment and the academic support to make this a successful program which would benefit many pre-meds and their future patients.

I advise a lot of pre-med students who are not successful in gaining admission the first time applying. Having this program at MTSU is much needed. Please let me know if I may be of further assistance.

Sincerely,

Stephanie Cole

Stephanie Cole
Admissions Counselor
Quillen College of Medicine
ETSU
colesd@etsu.edu
423-439-2036



VANDERBILT School of Medicine
Vanderbilt Vaccine Center

Dr. Mark Byrnes
University Provost
MTSU Box CAB 110
Murfreesboro, TN 37132

Dear Provost Byrnes:

It is my pleasure to provide a letter of support for the MS Program in Biomedical Sciences at MTSU. This program will allow students to receive additional upper division coursework in Biology and Biochemistry to prepare them for the rapidly expanding research laboratory positions at Vanderbilt University Medical Center.

Over the years we have employed many great MTSU students. As Associate Director of the Vanderbilt Vaccine Center, I, personally, have been impressed by the training given to the undergraduate students at MTSU. The MS in Biomedical Sciences will give your graduates additional academic background as well as more laboratory skills and experiences that will make them very marketable in the research laboratories at Vanderbilt and beyond.

If I can provide additional information, please do not hesitate to contact me at Robert.carnahan@vumc.org, or 615-308-2987.

Best Regards,

A handwritten signature in blue ink that reads "R. H. Carnahan".

Robert H. Carnahan, Ph.D.
Associate Professor
Departments of Pediatrics and Radiology
Associate Director, Vanderbilt Vaccine Center
Vanderbilt University Medical Center

To whom it may concern,

My name is Thomas Woodward, lead scientist at Volunteer Botanicals and graduate of MTSU's MSPS in Biotechnology program. The MSPS program prepared me for my current position in a way that I do not believe was intended. I do believe the program does an excellent job at preparing the students with having to speak and give presentations to a group in multiple formats, whether that be online or in person. Second, and the most positive aspect of this program, the students are forced out of their comfort zones by having to do multiple interviews and eventually intern for a "real" job. Most students in the program have not been part of a job that is in their field of learning, and this program allows them the unique opportunity to have to strive for a position at a place they hoped to work for, or to intern with a place they learn to love. This allows for the students to know if they want to continue in that job or move on to the next. This program also forces learning outside of a textbook and pressures learning through experience, which often is the best learning tool.

Our company would love it if Middle Tennessee State University also provided a MS program in Biomedical Sciences. Our mission is to evolve plant-based healing through technology and innovation. We at Volunteer Botanicals have proprietary processes that allow us to convert medicinal plant oil/extracts into our Satival powders and water-soluble liquids. Once in this format, you can compound with other medicinal plants to create all-natural dietary supplements.

All in all, I believe my MS in Biotechnology and the internship program does a great job at preparing students for industry work, and I believe the internship is an essential aspect in allowing students to advance their futures in a less stressful way. I also believe our company would love to have our local university provide a MS program in Biomedical Science. This program would add value to our company.

Sincerely,

A handwritten signature in black ink, appearing to read 'Thomas Woodward', written in a cursive style.

Thomas Woodward
Lead Scientist
Volunteer Botanicals, LLC



Financial Projections Form

Institution Middle Tennessee State University

Program Name MS in Biomedical Sciences

Projected One-Time Expenditures

Category	Planning	Year 1	Year 2	Year 3	Year 4	Year 5
Faculty & Instructional Staff	\$0	\$0	\$0	\$0	\$0	\$0
Non-Instructional Staff	\$0	\$0	\$0	\$0	\$0	\$0
Graduate Assistants	\$0	\$0	\$0	\$0	\$0	\$0
Accreditation	\$0	\$0	\$0	\$0	\$0	\$0
Consultants	\$4,000	\$0	\$0	\$0	\$0	\$0
Equipment	\$0	\$0	\$0	\$0	\$0	\$0
Information Technology	\$0	\$0	\$0	\$0	\$0	\$0
Library resources	\$0	\$0	\$0	\$0	\$0	\$0
Marketing	\$2,000	\$0	\$0	\$0	\$0	\$0
Facilities	\$0	\$0	\$0	\$0	\$0	\$0
Travel	\$0	\$0	\$0	\$0	\$0	\$0
Other	\$0	\$0	\$0	\$0	\$0	\$0
<i>Total One-Time Expenditures</i>	<i>\$6,000</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>

Projected Recurring Expenditures

Category	Planning	Year 1	Year 2	Year 3	Year 4	Year 5
Faculty & Instructional Staff	\$0	\$40,200	\$40,200	\$40,200	\$40,200	\$40,200
Non-Instructional Staff	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000
Graduate Assistants	\$0	\$0	\$0	\$0	\$0	\$0
Accreditation	\$0	\$0	\$0	\$0	\$0	\$0
Consultants	\$0	\$0	\$0	\$0	\$0	\$0
Equipment	\$0	\$0	\$0	\$0	\$0	\$0
Information Technology	\$0	\$0	\$0	\$0	\$0	\$0
Library	\$0	\$0	\$0	\$0	\$0	\$0
Marketing	\$0	\$500	\$500	\$500	\$500	\$500
Facilities	\$0	\$0	\$0	\$0	\$0	\$0
Travel	\$0	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
Other	\$0	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
<i>Total Recurring Expenditures</i>	<i>\$40,000</i>	<i>\$84,700</i>	<i>\$84,700</i>	<i>\$84,700</i>	<i>\$84,700</i>	<i>\$84,700</i>
Grand Total (One-Time and Recurring)	\$46,000	\$84,700	\$84,700	\$84,700	\$84,700	\$84,700

Projected Revenue

Category	Planning	Year 1	Year 2	Year 3	Year 4	Year 5
Tuition	\$0	\$192,720	\$218,416	\$231,264	\$256,960	\$282,656
Grants	\$0	\$0	\$0	\$0	\$0	\$0
Other	\$0	\$0	\$0	\$0	\$0	\$0
Total Revenues	\$0	\$192,720	\$218,416	\$231,264	\$256,960	\$282,656