Florida Atlantic University
Ph.D. in Biomedical Science Innovation and Technology
CIP 26.0102

Proposal document included:

Abbreviated Degree Proposal*

Documents available upon request:

Additional Workforce Alignment & Demand
Course Catalog
Curricular Framework
Duplication of Existing Programs
External Consultant's Report & Feedback
Faculty Curriculum Vitae
Faculty Productivity
Graduate Student Feedback Surveys
Hanover Research Academic Program Assessment
Institutional Resources
Letters of Support for the Program from other Universities and Employers
Letters of Support or MOUs from Other Academic Units

*Complete degree proposal is available in the resources section in Onboard

STATE UNIVERSITY SYSTEM OF FLORIDA

Request to Offer a New Degree Program

In accordance with Board of Governors Regulation 8.011,
Academic Degree Program Coordination and Approval

Florida Atlantic University **Institution Submitting Proposal**	**Spring 2027** **Proposed Implementation Term**
College of Medicine **Name of College(s) or School(s)**	**College of Medicine** **Name of Department(s)/Division(s)**
Biomedical Science **Academic Specialty or Field**	**PhD in Biomedical Science Innovation and Technology** **Complete Name of Degree**
26.0102 **Proposed CIP Code**	

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met before the program's initiation.

June 16, 2026
Date Approved by the University Board of Trustees

Board of Trustees Chair's Signature **Date**

President's Signature **Date**

Provost's Signature **Date**

STATE UNIVERSITY SYSTEM OF FLORIDA

I. Overview

A. Briefly describe the proposed program in the following table.

Purpose	The Biomedical Science Innovation and Technology PhD program will provide an interdisciplinary training program for students in state-of-the-art concepts, technology applications and research skills in biomedical science. The program is designed to provide employment skills in biomedical science and biomedical science related fields. The program will build off the College of Medicine (COM) Master of Science in Biomedical Science and the Certificate in Genomics and Precision Medicine. Students in their first year will pursue COM core courses including Human Genetics, Integrating Genomics into Predictive Health, Advanced Cell and Molecular Biology and Multi-omics in Health and Disease. In addition to these technology and research skills focused courses, students will also be required to take specific elective courses in biomedical science technology, AI applications for biomedical science and computational applications for biomedical science. Additional skills in biomedical innovation, medical technology development, creative experimental design and planning will be obtained through individualized dissertation research in COM NIH-funded labs. The Biomedical Science Innovation and Technology PhD program will offer a unique curriculum for scientists who want to impact patient care by developing innovations to prevent, diagnose, and treat disease. The program will increase SUS STEM and health- specific advanced degrees. The total number of credit hours required is a minimum of 72.
Degree Level(s):	The College of Medicine will offer the Biomedical Science Innovation and Technology PhD degree.
Majors, Concentrations, Tracks, or Specializations	The PhD program will not include formal concentrations or tracks; all students will earn a Ph.D. in Biomedical Science Innovation and Technology.
Total Number of Credit Hours	The total number of credit hours required is a minimum of 72.
Funding Type	☒ **E&G Program** ☐ **Market Tuition Rate Program*** ☐ **Self-Supporting Program*** ☐ **Other** *Refer to Board Regulation 8.002, Self-Supporting and Market Tuition Rate Program and Course Offerings, for additional details.

Possible Career Outcomes	**Biomedical Science and related field Teacher, Postsecondary; Medical Scientists; Biomedical Research Scientists; Epidemiologist; Medical and Health services Manager; Clinical and Translational Research Scientist; Health Informatics Scientists; Biomedical Data Scientists; Digital Health or Artificial Intelligence Researcher; Government Health Research Scientists; Healthcare Technology Consultant; Research Program Director**

B. Does the proposed program qualify as a Program of Strategic Emphasis, as described in the Florida Board of Governors 2030 System Strategic Plan?

Programs of Strategic Emphasis

☒ Yes, it does qualify as a Program of Strategic Emphasis.

☐ No, it does not qualify as a Program of Strategic Emphasis.

CIP 26.0102 (Biomedical Sciences, General) is included on the Board of Governors' Programs of Strategic Emphasis list for doctoral programs (BOG approval 11/9/2023, effective 2024–25.

B. **Does the program fall under one of the CIP codes listed below that qualifies for the Programs of Strategic Emphasis Waiver?** ***(for baccalaureate programs only)***

CIP CODE	CIP TITLE
11.0101	Computer and Information Sciences
11.0103	Information Technology
13.1001	Special Education and Teaching
13.1202	Elementary Education and Teaching
14.0801	Civil Engineering
14.0901	Computer Engineering
14.1001	Electrical and Electronics Engineering
14.1901	Mechanical Engineering
27.0101	Mathematics
52.0301	Accounting
52.0801	Finance
52.1201	Management Information Systems

☐ Yes. If yes, students in the program will be eligible for the Programs of Strategic Emphasis waiver. Refer to Board Regulation 7.008.

☒ No

II. Institutional and State-Level Accountability

A. Describe how the proposed program directly or indirectly supports the following.

1. **The priorities of the State University System's Strategic Plan, "SUS 30 Extraordinary Impact."**
2. **The institution's strategic plan and goals that the program will directly advance.**
3. **The university's mission.**

The benefit to the university, the local community, and the state.

Support for System Strategic Planning Goals

FAU's proposed PhD in Biomedical Science Innovation and Technology supports the SUS 30 Strategic Plan for the state universities by:

- **Elevating student success** - Increasing the number of graduate degrees aligned with Florida's workforce needs and providing students with a positive return on their investment.
- **Innovative Research & Economic Development** - Increasing the amount of research activity and attracting more external funding which will increase FAU's national ranking for research expenditures.
- **World- Class Talent** – This PhD program curriculum will be innovative and adaptive to align with employer needs.

This proposed program is consistent with the Florida Board of Governor's Strategic Plan SUS 30 specifically:

- *Elevating Student Success*: By providing a new PhD academic program in Biomedical Science Innovation and Technology, FAU will strengthen the quality and rigor of medical and technology programs offered by FAU, to increase student scholarship, research opportunities, funding opportunities, biomedical technology innovation, and health community and business engagement. These goals are commensurate with the continued growth and advancement of the College of Medicine and are aligned with FAU's mission as a first-class R1 status institution. Specifically, this new program advances the following areas:
  - **Strengthens academic programs**: Adds a high-demand interdisciplinary Biomedicine-related doctoral degree filling a critical gap in student program offerings at the College of Medicine.
  - **Strengthens scholarship**: Increases faculty-student research opportunities stimulating student publications, faculty research grants, and innovative outputs.
  - **Strengthens research infrastructure**: Creates avenues for clinically applied new research opportunities, translational innovative research programs, collaborations between the College of Medicine, other FAU Colleges and institutes and the community at large.
  - **Strengthens innovation**: Anchors FAU as a leader in Biomedical innovation and emerging technologies providing a basis for attracting patents and private sector engagement.
  - **Strengthens community and business engagement**: Formalizes partnerships and provides opportunities for collaboration with hospitals, biotech companies, digital health firms, and community health organizations.
  - **Strengthens FAU's reputation**: Positions FAU as one of the few institutions offering a

Ph.D. program at the intersection of biomedical innovation and technology specifically in the emerging areas of human genetic technology, biomedical applications and precision medicine. This unique Ph.D. will increase the number of Florida's new academic programs with state, national, and international recognition. It aligns with Florida's workforce needs and provides students with a positive return on their investment. The goal of this new PhD program is to produce highly skilled graduates that are prepared to succeed in high-quality careers within the field of biomedical research and innovation.

Operational Excellence: The proposed Ph.D. in Biomedical Science Innovation and Technology will leverage the existing infrastructure of the College of Medicine (COM), including faculty, courses, and administrative support from the established Master of Science in Biomedical Science and the Genomics and Predictive Health Certificate programs. By building upon these robust academic foundations, the new Ph.D. program presents minimal financial risk and ensures operational efficiency from the outset.

World-Class Talent: The PhD in Biomedical Science Innovation and Technology is a unique program designed to meet the constant growth of biomedical and related industries. This program will fill an unmet need for students to obtain the knowledge, skills and experience required for successful careers in biomedical technology development and application from genomics through genetic engineering AI applications, precision medicine and beyond. The program will not only advance College of Medicine and FAU students but will provide students and faculty with a critical link between multiple employment sectors including industry, academics, and government. Based on our marketing survey (Hanover Research), national demand for this type of biomedical research doctoral degrees is high, and this program will attract highly qualified students at the state and national levels.

This program fills a critical gap in biomedical research and technology training programs at FAU and beyond by preparing graduates with the specialized skills they need to obtain employment in biomedical technology-enabled care models, digital health innovation, data-driven decision-making, AI-supported clinical solutions, healthcare product development, and translational research.
Graduates will be uniquely qualified for roles in:

- **Industry** – including biomedical device innovation, digital health product design, clinical R&D, health analytics and technology commercialization.
- **Academic and Research Institutions** – including faculty and research scientist positions focused on biomedical innovation, implementation science, digital health evaluation, and interdisciplinary translational research.
- **Government and Public Health Agencies** – including roles in technology policy development, public-sector innovation, health system modernization, and evidence-based evaluation of emerging technologies.

By equipping graduates with this combination of scientific, technological, and innovation-oriented expertise, the program directly meets workforce demands and positions students for high-impact careers across multiple sectors that increasingly rely on talent trained at the intersection of biomedical science and technology.

The results from Hanover Research marketing survey anticipate the demand for this distinctive PhD program to come locally and nationally. By providing this new PhD degree the University will directly enhance the quality and reputation of its academic programs and its

research and scholarship activities and fill a critical gap in education and training available to students. Through access to state-of-the-art resources, faculty and research facilities, students will gain mastery of cutting-edge techniques in emerging biomedical applications including genetics, genomics, bioinformatics, single-cell technologies, machine-learning–driven predictive health modeling, digital health tool development, biomedical sensor integration, translational wet-lab research methods, stem and tissue engineering technology, medical diagnostics and imaging, and development and testing of health-focused technologies. These experiences will prepare students to excel in highly innovative, hands-on laboratory and technology-driven research environments in academics, government and the private sector.

Demand is already evident among FAU graduate students enrolled in the Genomics and Predictive Health Certificate program and among students enrolled in the COM Master of Science Biomedical Science Program who in multiple surveys expressed a desire for doctoral opportunities offered specifically by the College of Medicine. These students seek medically-focused research experiences directly applicable to emerging biomedical science technologies and real-world clinical applications, and many prefer to continue their education at the COM in a specialized biomedical science doctoral program.

Although national and regional labor market data indicate sustained demand for doctoral-level professionals in health science and technology fields, this program is intentionally designed as a boutique, high-caliber training model that prioritizes depth of training, intensive (quality)mentorship, and advanced research immersion rather than high enrollment numbers. The College of Medicine will admit a maximum of five students in the first year and a total of ten students by Year 5, ensuring individualized faculty mentorship, direct and abundant access to research infrastructure, and personalized professional training experience. The high-caliber training model is built to provide students with specialized, research-intensive preparation that includes customized dissertation pathways, dedicated faculty advising teams, hands-on experience with advanced health technologies, and participation in interdisciplinary research collaborations. This approach is designed for developing scholar-innovators who are capable of leading high-impact research, contributing to technological breakthroughs, and shaping the future of human health science.

By focusing on quality over quantity, the program will ensure that each graduate emerges with the depth of expertise required to excel in competitive academic, industry, and government health and biomedical technology employment opportunities.

Innovative Research & Economic Development - Florida Atlantic University has achieved the pinnacle of research excellence. In 2025, the Carnegie Classification of Institutions of Higher Education designated Florida Atlantic as R1: Very High Research Spending and Doctorate Production – the most prestigious research accolade in the country. The R1 designation indicates a truly comprehensive university that spurs economic development, attracts high-quality students and faculty, and increases external funding. R1 universities meet benchmarks in research, educational activity, and vital research staffing, as measured by the Carnegie Classification of Institutions of Higher Education. This commitment to excellence in “very high research activity” not only reflects the accomplishments of current students involved in research but also shows that the successful academic programs will provide students with the skills and experience needed to become well-rounded researchers. The PhD in Biomedical Science Innovation and Technology will improve the quality and relevance of FAU’s R1 status with state-of-the-art research that will develop a culture of student success and excellence in research and inquiry. It will increase externally funded research, leading to broad external recognition of our academic and research programs.

By providing this new academic program, FAU will be expanding degree access and productivity in a relevant STEM field, directly increasing the number of graduate degrees in areas of workforce needs. The PhD in Biomedical Science Innovation and Technology (CIP 26.0102), creates a breadth of coursework and research opportunities that extend beyond any of the current health-related programs at FAU. Unlike existing programs that focus primarily on traditional basic science, this doctoral program integrates emerging biomedical innovation technologies with state-of-the-art mentoring for students to achieve the conceptual and technical skills they need to enter the Biomedicine technology and medical applications workforce.

This program provides students with competency in areas not currently emphasized in other FAU programs—such as human-centered biomedical technology applications, data-driven health solutions, implementation science, AI-supported healthcare methods, regulatory science for emerging technologies, and technology commercialization pathways. These elements create a unique, innovation-focused training environment with a medical application emphasis currently not offered at FAU. According to our marketing survey the focus of this program on genetics and precision medicine makes it unique not only at FAU but statewide with only a handful of similar programs available nationally.

Establishing a new FAU degree program in biomedical science and technology will directly increase the number of doctoral graduates with high-quality training in the field of biomedicine. As determined by our recent marketing survey, the demand for highly trained biomedical science researchers and innovators continues to rapidly increase in parallel with technological advancements. Data from the U.S. Bureau of Labor Statistics projected a 9% increase in job opportunities from 2024-2034 for medical scientists. Entry-level educational requirements for these positions are a doctoral degree in biomedical sciences and/or health science. High paying jobs are in the rapidly growing fields of genetic and genomic technologies, stem cell therapy and bioengineering, drug development, vaccine development, medical device development and more. NIH institutes targeting areas of biomedical science research and innovation for funding include the National Human Genome Research Institute (NHGRI) as well as NIA, NCI, NHLBI, NIAID, NIANS, NEI, and NCBI. This program will have a major impact on the ability to maintain and attract research funding by the COM and FAU. Major research funding for this program is projected to come not only from government sources but also from health science-related foundations and from industry partnerships. The NIH currently provides $1,097,560,262 in research funding to the State of Florida alone. Much of this money is earmarked for specific biomedical science-related projects that will be supported by this program including increased funding for human health sciences research and technology development. As evidence of the College of Medicine's strong research foundation, the COM currently receives approximately $20 million in NIH research funding and manages more than $31 million in total grants and contracts. The proposed program will build upon this success by expanding research capacity, fostering interdisciplinary collaboration, and creating additional opportunities to compete for external funding, including support from the National Institutes of Health. The College of Medicine also received over $15,000,000 in donors and foundation funding also expected to increase with the initiation of this program.

FAU Institutional Goals and Priorities

Goal 1 Increase Degree Productivity and Program Efficiency:

By providing a new academic program in the area of biomedical science innovation and technology, FAU will increase access to and production of advanced degrees in the State of Florida.

Goal 2 Increase Community and Business Workforce:

By providing a new academic program in the area of biomedical science innovation and technology,

FAU will be helping to meet critical needs in this critical STEM field. The types of innovation and technologies emphasized in this Ph.D. program include large scale genomic and genetic data analysis and applications, digital health innovation, human diagnostic technologies and imaging, AI- and data-science–enabled health solutions, biomedical device and sensor innovation, predictive health analytics, and technology-supported care models.

Preparing students to understand, design, evaluate, and translate these innovations into real-world practice will contribute directly to the healthcare workforce and support economic development in FAU's regional and global communities. Graduates will be equipped to lead improvements in healthcare delivery, optimize health system performance, create new biomedical technologies, and drive organizational transformation across clinical, industry, and public-sector settings.

Goal 3: Building world-class academic programs and research capacity.
By providing a new academic program in biomedical science and technology, FAU will be helping to increase externally funded research while increasing external recognition of our academic and research programs. Notably, faculty and students affiliated with the College of Medicine have received over $31,000,000.00 in research funding.

Goal 4: Meeting community needs and fulfilling unique institutional responsibilities.
By providing a new academic program in biomedical science and technology, FAU will support its institutional mission statement of promoting academic and personal development, discovery, and lifelong learning through excellence and innovation in teaching, outstanding research and creative activities, public engagement and distinctive scientific and industry alliances.

Support for University's Mission

The program aligns with Florida Atlantic University's mission as "a multi-campus public research university that pursues excellence in its missions of research, scholarship, creative activity, teaching, and active engagement with its communities." In addition, this PhD program will help meet the FAU Schmidt College of Medicine mission by transforming healthcare in South Florida and beyond through scientific breakthroughs in discovery, basic, and translational research and attracting and retaining the best scientific health workforce.

Integrating biomedical science, innovation and technology will underpin contributions to global health and well-being, and the PhD in Biomedical Science Innovation and Technology program will support excellence in teaching and active engagement with our communities throughout the region of South Florida and our state.

The proposed Ph.D. in Biomedical Science Innovation and Technology is deeply rooted in Florida Atlantic University's (FAU) longstanding strengths in biomedical research, interdisciplinary graduate education, and translational science. This program builds upon more than 15 years of institutional investment in biomedical science innovation, leverages established academic programs, aligns statewide strategic emphasis areas, capitalizes on FAU's premier institutes and centers, and extends the College of Medicine's proven record of federally funded research.

Benefits to the University

The PhD in Biomedical Science Innovation and Technology program will provide Florida Atlantic University (FAU) with several qualitative and quantitative benefits. Qualitatively, the program elevates FAU's profile as a leader in applied healthcare research, distinct from traditional biomedical research programs. This specialized offering strengthens FAU's R1

research status by demonstrating innovative, interdisciplinary doctoral production that aligns with strategic institutional goals. This creates new opportunities for faculty and enhances FAU's reputation for producing highly skilled, industry-relevant talent. Quantitatively, the program will contribute directly to FAU's research expenditures through external grants secured by faculty and students focusing on health technology, data analytics, and systemic innovation. The program will also generate modest but consistent enrollment revenue and diversify the university's doctoral portfolio with a high-demand, niche specialization. The College of Medicine (COM) currently does not offer any doctoral programs. The proposed Ph.D. program will be the first and only doctoral program within the College, representing a significant milestone in its academic growth and research mission. This program is essential for the growth and continued success of the COM.

Benefits to the local community

The program will deliver both qualitative and quantitative benefits to the South Florida community by establishing collaborative research projects that address specific community health related needs. Quantitatively, the presence of the program will foster economic growth by attracting and retaining high-skilled jobs in the region's rapidly expanding health technology and life sciences sectors. Research collaborations with local partners like Baptist Health and other current hospital partners will result in tangible innovations and create new economic opportunities. Graduates entering high-level leadership and administrative roles within South Florida's healthcare ecosystem will also boost the regional economy through increased income and productivity.

Benefits to the State

The program's benefits for Florida are multifaceted, with both systemic and economic impacts. Qualitatively, it positions Florida as a leader in biomedicine, biotechnology and healthcare innovation. The specialized training provided by the program will help Florida adapt to evolving medical related needs, such as those related to a growing and aging population. Quantitatively, the program will contribute to the state's economic vitality by fueling growth in the health tech and life sciences industries, which are already expanding faster than national averages. Graduates will develop new medical technologies and implement innovative business models that increase efficiency and potentially lower costs across the state's healthcare system. FAU's role in advancing research and education in this high-growth sector aligns directly with the state's economic development goals, ensuring Florida's competitiveness in the national biomedicine and healthcare landscape.

Existing Related Academic Programs

FAU has maintained a prominent institutional presence in Biomedical Science Innovation and Technology since the establishment of the Charles E. Schmidt College of Medicine (COM) in 2010. The COM Master of Science in Biomedical Science program, initiated in 2004, serves as a cornerstone of graduate biomedical training. This program enrolls 40–75 students annually and extends its educational reach to students in engineering, biology, psychology, chemistry, business, and neuroscience. The proposed Ph.D. will continue this progress by expanding doctoral-level training in biomedicine, including precision medicine, translational research, and biotechnology innovation.

Programs of Strategic Emphasis

The proposed Ph.D. program directly aligns with the Florida Board of Governors' areas of strategic emphasis in Health Professions and STEM. Graduates will contribute to Florida's growing need for

a highly skilled workforce in biotechnology, pharmaceuticals, health technology, and clinical research. This program supports FAU's mission to advance economic growth and competitiveness in the life sciences employment arena while advancing the university's leadership in biomedical science innovation.

Institutes and Centers

The program will benefit from FAU's strong network of institutes and centers. In addition, proximity to premier research entities such as Max Planck Florida Institute for Neuroscience and Scripps Florida provides doctoral students with visibility into a wide spectrum of health science research and innovation. These institutes and centers enrich the academic environment by broadening exposure to diverse areas of health sciences, genomics, biotechnology, and regenerative medicine, positions FAU as a university with extensive scientific depth and advanced research infrastructure.

Other Institutional Strengths

FAU's College of Medicine has cultivated a robust research enterprise, currently supported by more than $31 million in total grants and contracts. This includes 71 active awards totaling $31.5 million, reflecting a 31% increase in research expenditures over the past five years.

The below examples highlight FAU's ability to attract major federal funding and create productive ground for expanding biomedical science innovation:

Marc Kantorow, Ph.D., Associate Dean for Graduate Programs, is a leading expert in ocular development and mitochondrial regulation whose laboratory investigates the molecular and genetic mechanisms governing lens and retinal cell differentiation, homeostasis, and disease. His team has pioneered discoveries in how hypoxia-driven epigenetic and transcriptional programs regulate lens fiber cell maturation and transparency, advancing fundamental understanding of cataractogenesis and age-related visual degeneration. Under his leadership, the lab has received nearly 14 million dollars in NIH funding in two decades. Recent awards include a $2.8 million grant in 2016 for cell fate mechanisms (with $1.2 million as PI), a $1.3 million grant in 2020 for stem cell research, and a $1.9 million award in 2025 for therapies targeting degenerative diseases. This sustained record of peer-reviewed funding, combined with mechanistic insight and translational vision, firmly positions Dr. Kantorow as a core research pillar for the Ph.D. program within the College of Medicine.

Patrick Grant, Ph.D., Professor and Chair of the Department of Biomedical Science and Senior Associate Dean for Research, is a distinguished epigenetics researcher whose laboratory has made seminal contributions to understanding histone modifications, chromatin remodeling, and their roles in gene regulation, genomic stability, and disease. His current research focuses on how epigenetic modulation contributes to cancer chemotherapy resistance and the molecular underpinnings of substance use disorders (e.g., cocaine, opioids). For example, his lab recently secured funding from the Florida Department of Health's Live Like Bella Pediatric Cancer Research Initiative to examine epigenetic drivers of treatment-resistant pediatric acute lymphoblastic leukemia. Under his leadership as Chair of the Department of Biomedical Science, the department has seen significant growth in funding: NIH funding for the biomedical sciences unit under his oversight is reported at approximately $18.96 M, contributing to the College of Medicine's total of over $31.6 M in active research awards across 71 grants. In a notable prior award period, Dr. Grant was principal on an NIH grant valued at $670,545 as part of a collection of NIH awards. This combination of deep mechanistic insight, translational focus, and successful grant captures Dr. Grant's status as a core strength within the College of Medicine.

Lawrence Toll, Ph.D., Professor of Biomedical Science, is a world-renowned neuropharmacologist whose three-decade career has centered on neurotransmitter receptor systems with particular focus on the opioid/NOP (nociceptin) axis and nicotinic acetylcholine receptors, targeting translational solutions for pain, addiction, and comorbid psychiatric disorders. Dr. Toll has enjoyed sustained support from the National Institute on Drug Abuse (NIDA) since 1988, enabling continuity in long-term mechanistic and translational projects. One of his previous notable awards was a 5-year, $3.2 million NIH grant from NIDA for a project titled “Mixed NOP/mu Compounds and the Involvement of Their Receptors in Analgesia,” which supported investigation of how NOP receptor modulation affects chronic pain and abuse liability when combined with classical opioid systems. In addition, in 2018 he secured a $1.8 million NIH grant to examine chronic pain–induced changes in NOP receptor dynamics across central and peripheral nervous system compartments and their relevance to novel analgesic strategies. Dr. Toll currently has two NIH grant applications under review (one as PI with NINDS on non-opioid analgesics and one as PI with NIDA for continued development of PPL-138), and he also serves as co-investigator on two active grants focused on novel peptide analgesics and evaluation of PPL-138 for alcohol abuse in PTSD. This blend of pioneering basic science and translational drug discovery underscores Dr. Toll as a keystone faculty whose expertise and sustained grant record significantly enhances College of Medicine research profile.

Ning Quan, Ph.D., Professor of Biomedical Science, is a distinguished neuroimmunologist. His lab’s mission is to elucidate how the nervous and immune systems form an integrated “neuroimmune suprasystem” and to uncover the molecular dialogue that shapes brain function, behavior, and pathology. Dr. Quan currently leads major NIH grants including a 5-year $1.7 million R01 NS116914 (Neuroinflammation, Neuronal IL-1R1, and Behavior) (2020–2025) and R21 NS133843 (Dynamic Regulation of Neuroinflammation and IL-1β-Trap) (2023–2025), and he also participates as co-investigator on multi-year projects including R01 NS120882 (Neuronal IL-1R1 Signaling in Mild Closed-Head Injury) and R01 NS103785 (IL-1/IL-1R1 Signaling after Traumatic Brain Injury). In 2023, he also received a modest pilot grant of $20,000 from the FAU Stiles-Nicholson Brain Institute to support spatial genomics work on neuroimmune communication. This combination of foundational insight, methodological breadth, and sustained extramural funding illustrates Dr. Quan’s role as a central pillar in FAU’s research enterprise.

Jianning Wei, Ph.D., Associate Professor of Biomedical Science, is established academic scientist who researches centers on mechanisms of neurodegeneration and neuronal regeneration using molecular, genetic, biochemical, imaging, and bioengineering strategies. Her lab investigates proteostasis and the effects of protein misfolding—especially in Huntington’s disease models—by probing how mutant huntingtin disrupts cellular trafficking, glial support, and proteostatic machinery. In parallel, Dr. Wei is advancing interdisciplinary efforts in neuronal regeneration by integrating microfluidic platforms and engineering methods to study peripheral neuron regrowth under various stimuli. She also contributes to collaborative and translational initiatives: in 2023 she was co-investigator on an FAU seed funding award of $30,000 for a biophysical marker study of Huntington’s disease progression. More broadly, she is co-PI on a $1.3 million NIH grant supporting a prosthesis development project, reflecting her engagement in translational neural engineering work.

The mission of the proposed Ph.D. program is consistent with the College of Medicine’s commitment to educating scientists to meet Florida’s biomedical and healthcare needs, conducting research that advances knowledge, improving patient care, and serving communities with competence, compassion, and respect. By leveraging FAU’s academic programs, strategic emphasis areas, research institutes, and proven funding success, the Ph.D. program in Biomedical Science Innovation and Technology will become a cornerstone of biomedical discovery and translational excellence.

B. **Provide the date the pre-proposal was presented to the Council of Academic Vice Presidents Academic Program Coordination (CAVP ACG). Specify any concerns raised and provide a narrative explaining how each has been addressed in this proposal or will be addressed before the proposed program is implemented.**

The PhD in Biomedical Science Innovation and Technology was presented at the CAVP meeting on November 15, 2023. There were no concerns. All feedback received was complimentary regarding the timeliness of the degree program. The CAVP described the program as “a niche-focused program that will fill an area in a growing field that the programs available in the FLSUS will be able to provide a pathway into”.

III. Student and Workforce Demand

A. Describe the Florida and national workforce demand for the proposed program. The response should, at a minimum, include the current state workforce data from Florida's Department of Commerce and national workforce data from the U.S. Department of Labor's Bureau of Labor Statistics. Additional documentation for workforce needs may include letters of program support by employers and job postings for program graduates, as well as a description of any specific needs for research and service that the program would fulfill.

Market Demand and Employment Outlook

Hanover Research Report: As indicated in Appendix B, Hanover Research, an independent external consultant firm, conducted a very broad employment and student demand market feasibility study for the PhD program. Using this data and the U.S. Department of Labor’s Bureau of Labor Statistics Sources indicate an expected growth of job opportunities through the next decade both nationally and statewide.

National Workforce Trends
According to the U.S. Bureau of Labor Statistics, demand for advanced health and biomedical science researchers is expected to rise significantly over the next decade. As shown in Table 1, employment of medical scientists is projected to grow 9% from 2024–2034, faster than the average for all occupations, with doctoral training as the standard entry requirement.

Related fields, including epidemiology (16% growth nationally) and postsecondary health specialties of faculty (17% growth nationally), also show sustained demand. This data confirms the need for highly trained doctoral graduates in health sciences research, innovation, and technology.

Florida Workforce Needs

Florida mirrors national workforce trends indicating sustained demand for professionals in biomedical and health science fields. According to Florida Department of Commerce (FloridaCommerce), statewide growth is projected in several occupations closely aligned with the proposed program:

- Medical and Health Services Managers: +4%
- Epidemiologists: +3%
- Health Specialties Faculty: +4%

While FloridaCommerce's most recent Employment Projections to 2032 dataset does not include a specific growth rate for Medical Scientists, labor market indicators strongly suggest continued and growing demand across the state. As shown in Table 5, Florida's expanding healthcare infrastructure, rapidly aging population, and strong biomedical research ecosystem, particularly in Palm Beach and Broward counties, contribute to this need.

According to the U.S. Bureau of Labor Statistics (May 2023, Occupational Employment and Wage Statistics), Florida employed approximately 5,610 Medical Scientists (except Epidemiologists), with an annual mean wage of $121,960. This aligns with national trends that emphasize the need for doctoral-trained professionals capable of driving biomedical innovation, translational research, and data-driven healthcare solutions.

Overall, Florida's economic and demographic landscape underscores the demand for highly skilled biomedical scientists prepared to lead in academic, clinical, and industry research settings, precisely the workforce niche this proposed Ph.D. program seeks to fill.

Sources: Florida Department of Economic Opportunity (FloridaCommerce), Employment Projections to 2021 (stw32.xlsx), FloridaJobs.org; U.S. Bureau of Labor Statistics (May 2023), Occupational Employment and Wage Statistics: Medical Scientists, Except Epidemiologists, https://www.bls.gov/oes/2023/may/oes191042.htm#st.

Employer and Agency Requests

Hanover Research's market analysis identified robust demand for graduates with doctoral-level expertise in biomedical research, innovation, and health technology. U.S. employers posted over 620 recent job openings (Appendix B Hanover Report) for graduates with relevant training, particularly in faculty, research, and leadership roles. In South Florida, potential employers include Baptist Health, Cleveland Clinic Florida, Memorial Healthcare System, Tenet Healthcare, Scripps Research/UF, and Max Planck Florida Institute. Industry trends also point to increased hiring in biotechnology start-ups and digital health companies, where doctoral-level innovation skills are at a premium.

Research and Service Needs

Beyond workforce placement, the program will address critical research priorities. In fiscal year 2024, NIH awarded $869 million1 in grants and contracts that directly supported 14,606 jobs and 2.82 billion economic activity in Florida. Much of it directed toward human health research and technology development. Institutes such as NHGRI, NIA, NCI, and NHLBI identify genomics, applied bioinformatics, and integrated systems of biology as funding priorities. FAU's Schmidt College of Medicine already manages approximately $20 million in NIH research. NIH research

awards, and the proposed program will expand the university's capacity to compete for multi-PI, interdisciplinary grants.

1. National Institutes of Health (NIH), "NIH awards by location & Organization," FY2024. Retrieved September 2025 from http://report.nih.gov/funding/categorical-spending.

2. United Medical Research, "NIH's Role in Sustaining the U.S. Economy," FY2024 (2025 Update). Retrieved September 2025 from https://unitedformedicalresearch.org/.

The program will also serve Florida's healthcare needs by preparing graduates to lead research in:

- **Genetic and genomic technologies**
- **Stem cell therapies and regenerative medicine**
- **Drug and vaccine development**
- **Medical devices and digital health solutions**

These areas are central to reducing healthcare costs, addressing chronic disease burden, and driving innovation in Florida's life sciences sector.

Taken together, national BLS projections, Florida DEO workforce forecasts, Hanover Research's market analysis, and NIH funding priorities demonstrate that there is a clear and growing demand for doctoral-level expertise in biomedical and health science innovation and technology. FAU's proposed Ph.D. program will not only prepare graduates for high-growth occupations but will also strengthen the state's biomedical research infrastructure, enhance industry partnerships, and expand the university's capacity to attract competitive research funding.

Table 1. U.S. Bureau of Labor Statistics projected job growth to 2034, listed by Standard Occupational Classification (SOC) system codes (From 2024 table).

SOC Title	SOC code	Employ - ment 2024	Projected Employ- ment 2034	Job growth 2024-2034 Number	% job growth	Annual mean wage 2024	Minimum Education Level Needed for Entry
Medical Scientists, Except Epidemiologists	19-1042	165,300	179,600	14,300	9.0%	$100,590	Doctoral or professional degree
Health Education Specialist	21-1091	71,800	75,000	3,200	4.0%	$63,000	Bachelors Degree
Epidemiologists	19-1041	12,300	14,300	2,000	16.0%	$83,980	Masters Degree
Medical and Health Services Managers	11-9111	616,200	759,100	142,900	23.0%	$117,960	Bachelors Degree
Health Specialties Teachers, Post-Secondary	25-1071	289,600	339,700	50,100	17.0%	$105,620	Doctoral or professional degree

Source: U.S Bureau of Labor Statistics (BLS), Employment Projections: Table 1. Employment by detailed occupation, 2024 and projected 2034. Retrieved September 2025 from https://data.bls.gov/projections/occupationProj

B. If the occupations do not currently appear in the most recent version of the Search by CIP or SOC Employment Projections Data Tool provided by Board staff, provide occupational linkages or jobs that graduates will be qualified to perform based on the training provided to students in the proposed program in the table below. Contact the institutional representative working with you on the degree proposal for more information about possible occupations.

Table 2. Occupational Linkages for the Proposed Program

SOC Code	Occupation Title	Source / Reason for Inclusion
19-1042	Medical scientists, except epidemiologists	Data from the U.S. Bureau of Labor Statistics (BLS) projects a 9% increase in job opportunities from 2024-2032 for medical scientists including thesis with PhD training. Entry-level educational requirements for these positions are a doctoral degree in Biomedical and Health Sciences.
21-1091	Health education specialists	Multiple Health Education Specialist positions may require an advanced degree. Overall, program graduates with health IT and informatics systems training, experience in leadership or as instructors, and those who can contribute to health promotion and general public health efforts will likely be able to find employment in the United States
19-1041	Epidemiologists	Epidemiologists typically need at least a master's degree, but most have PhD degrees. The degree may be in a range of fields or specializations, although a master's degree in public health with an emphasis in epidemiology is common. Epidemiologists who direct research projects, including those who work as postsecondary teachers in colleges and universities—often have a Ph.D. or M.D. degree.
11-9111	Medical and health services managers	The curriculum and areas of emphasis are designed to fill a current gap in training opportunities needed for health science administrators and clinical health professionals
25-1071	Health specialties teachers, postsecondary	Health Specialists for post-secondary teachers require a doctorate for optimal career status and income levels.

IV. Curriculum

A. If the program is a bachelor's degree, please identify if the university is seeking any of the following statuses for the program.

☒ Not Applicable

B. Describe the admissions criteria and graduation requirements for the program.

Admission Standards:
The program aims to admit students that are academically excellent and are passionate about research in biomedicine, biotechnology and human health. Students will have completed an undergraduate or M.S. degree that provides significant education in the areas of biology, chemistry, genetics, biomedical science, biochemistry, molecular biology or biomedical engineering.

Admission Requirements:
All students must meet the minimum graduate admission requirements of the University. Please refer to the Admissions section of this catalog. Additional requirements are:
• Completion of a Bachelor's or M.S. degree from a regionally accredited institution in areas such as biology, chemistry, genetics, molecular biology, biochemistry, biomedical science or biomedical engineering.
• Minimum grade point average of 3.0 as an undergraduate and/or M.S. student.
• Complete sets of transcripts from previous institutions(s) attended.
• A minimum of 3 letters of recommendation, preferably from instructors and advisors who are familiar with the applicant's recent academic or research experience.
• A strong personal statement outlining the applicants' goals and motivations in applying for the program.

Graduate Record Examination scores are optional
International applicants whose native language is not English must score at least 550 (paper-based test), 213 (computer-based test) or 79-80 (Internet-based test) on the Test of English as a Foreign Language (TOEFL). Additionally, international applicants whose transcripts are from non-U.S. institutions must have their credentials evaluated course-by-course with a grade point average (GPA) calculation on a 4.0 scale. International applicants must also demonstrate competency in spoken English. Applicants are encouraged to contact a potential Ph.D. supervisor within the College of Medicine prior to applying for the program and submit a letter of support from that supervisor with their application. The Ph.D. supervisor must be a member of the program's graduate faculty and will chair the supervisory and dissertation research committees.

Previous Graduate coursework may be applied toward the course requirements of the Biomedical Science Innovation and Technology Ph.D. Students may receive up to 15 credits earned beyond the baccalaureate degree. Transfer credits must be approved by the Program Curriculum Committee and the Graduate College. Evaluation of transfer credits will be based on content and will require an official copy of each course syllabus for assessment.

Degree Requirements:
The Doctor of Philosophy in Biomedical Science Innovation and Technology is a research-intensive degree requiring a minimum of 72 credits beyond the baccalaureate degree. The following are requirements for the Health Biomedical Innovation and Technology Ph.D. degree:

1. Completion of 15 Core credits as identified in the curricular framework.
2. Completion of 9 restricted elective credits as identified in the curricular framework.
3. Completion of at least 12 unrestricted elective credits of graded coursework from the courses identified in the curricular framework. All electives must be approved by the student's Ph.D. supervisor.
4. The remaining 11 unrestricted elective credits may be 5000-, 6000- or 7000- level courses in biology, biomedical science, chemistry and biochemistry, complex systems and brain sciences, engineering and computer science, special topics or approved cognates.
5. Completion of at least 25 dissertation credits under the direction of the student's dissertation research committee.
6. Students must achieve a grade of "B" or higher in all graduate coursework and maintain a cumulative grade point average of 3.0 or higher.
7. Admission to Ph.D. candidacy requires both the successful writing and public presentation of an original dissertation research proposal. The defense of the dissertation proposal will be held with the student's dissertation research committee following the public dissemination.
8. Degree completion requires both the successful writing and public presentation of original dissertation research. The defense of the dissertation research will be held with the student's dissertation research committee following the public dissemination.
9. Students are expected to publish at least one peer-reviewed research paper as first author involving research activities described in their dissertation proposal prior to degree completion.

C. If the proposed program is an AS-to-BS capstone, provide evidence that it adheres to the guidelines for such programs, as outlined in State Board of Education Rule 6A-10.024. List any prerequisites and identify the specific AS degrees that may transfer into the proposed program.

☒ Not applicable to this program because it is not an AS-to-BS Capstone.

D. **Select the anticipated mode of delivery for the proposed program.**

☒ Face-to-Face
☐ Hybrid
☐ Distance Learning

If the method(s) of delivery will require specialized services or additional financial support, describe the projected costs below.

Anticipated Mode of Delivery

The program will be delivered exclusively via face-to-face instruction. This method is essential for fostering a collaborative, hands-on learning environment, which is crucial for doctoral-level research and training within the medical and scientific fields. All courses, seminars, and research activities will be conducted in person within the facilities of the College of Medicine and associated research labs.

This face-to-face delivery method does not require any specialized services or additional financial support beyond the standard operating budget of the program. Therefore, there are no additional costs related to the mode of delivery.

E. Describe any currently available sites for internship and/or practicum experiences and any plans to seek additional sites in the next five years.

☒ Not applicable to this program because students are not expected to seek internship or practicum opportunities as a required curriculum component.

Internship and Practicum Experiences

This program does not require internships or practicums as part of the degree requirements. Accordingly, no internship sites are currently in place, nor are any anticipated to be developed in future years. The curriculum is designed to provide all required experiential and applied learning components through coursework, faculty-mentored research, and project-based experiences embedded within the academic program.

Ph.D. trainees will be required to participate in several structured scholarly activities that serve as internal practicum-style experiences, emphasizing communication, collaboration, and dissemination of research findings:

College of Medicine (COM) Graduate Distinguished Lecturer Seminar Series
All College of Medicine graduate students are required to attend the Distinguished Lecturer Seminar Series throughout the academic year. During these sessions, faculty and invited speakers present current research topics across biomedical and health science disciplines. This engagement enhances students' understanding of diverse research methodologies and fosters critical thinking and scientific communication skills.

COM Graduate Student Research Day
Each year, Ph.D. trainees will present their research through poster presentations at the COM Graduate Student Research Day. This event provides an opportunity to share findings with faculty, peers, and collaborators, and to receive feedback that supports continued research development. It also promotes scholarly interaction and interdisciplinary exchange among the College's research community.

FAU Graduate College Three Minute Thesis (3MT®) Competition
Doctoral students are encouraged to participate in the FAU Graduate College's Three Minute Thesis competition, which challenges participants to present their research clearly and concisely to a broad audience within three minutes. This event

helps trainees refine their communication and presentation skills, preparing them for future conference presentations, professional interviews, and outreach activities. Collectively, these academic and research-based activities ensure that Ph.D. students acquire essential experiential learning outcomes consistent with those of programs requiring formal internships or practicums, while remaining fully integrated within the academic and research mission of the College of Medicine.

F. Identify any established or planned educational sites where the program will be offered or administered. Provide a rationale if the proposed program will only be offered or administered at a site(s) other than the main campus.

Educational Sites

The proposed program will be administered and housed primarily within the College of Medicine at the university's main campus in Boca Raton. All core educational and administrative functions, including didactic courses, will take place at this central location. However, to ensure students have access to the full scope of research expertise and specialized laboratory facilities within the College of Medicine, students conducting research with faculty members whose labs are located on the Jupiter campus will be expected to work at that facility. This arrangement provides students with access to a wider range of research specializations and resources, ensuring a comprehensive and robust doctoral experience while maintaining program consistency under a single administrative home. No student will complete more than half of the required credits at Jupiter, consistent with the threshold in Board of Governors Regulation 8.009(2)(a)4 and (2)(d)4. The dissertation accounts for 25 of the 72 required credits, or approximately 35 percent.

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V. Faculty

A. Identify existing and anticipated full-time faculty who will participate in the proposed program through Year 5, excluding visiting or adjunct faculty in table 10 below. Additionally, provide the curriculum vitae for each identified faculty member.

Table 10 Faculty Participation

Note. Table 10 identifies 43 faculty projected to participate through Year 5, of which 28 are currently available in the Biomedical Science Department. All are Faculty Code A (existing faculty on a regular line, current E&G revenue) and begin in the initial term of implementation.

Faculty Name, Degree & Academic Discipline	Rank	Contract Status	Faculty Name, Degree & Academic Discipline	Rank	Contract Status
Patrick A. Grant, Ph.D. Medicine	Professor	Tenure	Lisa Ann A. Brennan, Ph.D. Biomedical Sciences	Research Prof.	Non-Tenure
Randy D. Blakely, Ph.D. Neuroscience	Professor	Tenure	Maureen Hahn, Ph.D. Neuroscience	Research Assoc. Prof.	Non-Tenure
Ajay Bommareddy, Ph.D. Pharmacology	Assoc. Professor	Non-Tenure	Hideki Iwamoto, Ph.D. Neuroscience	Research Assoc. Prof.	Non-Tenure
Massimo Caputi, Ph.D. Molecular Genetics	Professor	Tenure	Akihiko Ozawa, Ph.D. Biomedical Sciences	Research Assoc. Prof.	Non-Tenure
Andrea Cippitelli, Ph.D. Pharmaceutical Sciences	Asst. Professor	Tenure-Track	Lawrence Brickman, M.D. Surgery	Assoc. Professor	Non-Tenure
Lyonna Parise, Ph.D. Neuroscience	Asst. Professor	Tenure-Track	Mark Di Corcia, Ph.D. Health Communication	Assoc. Professor	Non-Tenure
Xupei Huang, M.D., Ph.D.	Professor	Tenure	Mario Jacomino, M.D. Women's and Children's Health	Professor	Non-Tenure
Krinio Giannikou, Ph.D. Genetics	Asst. Professor	Tenure-Track	Corinne Lasmezas, Ph.D. Neurosciences	Professor	Tenure
Ceylan Isgor, Ph.D. Animal Learning and Behavior	Assoc. Professor	Tenure	Mahyar Nouri-Shirazi, Ph.D. Immunology	Professor	Non-Tenure
Marc Kantorow, Ph.D. Genetics	Professor	Tenure	Peter Holland, M.D. Clinical Neuroscience	Professor	Non-Tenure
Michael Lu, Ph.D. Molecular and Cellular Biology	Assoc. Professor	Tenure	Lawrence Lottenberg, M.D. Surgery	Professor	Non-Tenure

Faculty Name, Degree & Academic Discipline	Rank	Contract Status	Faculty Name, Degree & Academic Discipline	Rank	Contract Status
Andrew Oleinikov, Ph.D. Biology	Professor	Tenure	Lea Sacca, Ph.D. Population Health	Asst. Professor	Non-Tenure
Howard M. Prentice, Ph.D. Biochemistry	Professor	Tenure	Michelle Retrouvey, M.D. Women's and Children's Health	Asst. Professor	Non-Tenure
Ning Quan, Ph.D. Physiology	Professor	Tenure	Joseph Ouslander, M.D. Geriatric Medicine	Professor	Tenure
Claudia O. Rodrigues, Ph.D. Microbiology	Assoc. Professor	Tenure-Track	Maria Mejia, M.D. Population Health	Professor	Non-Tenure
Wen Shen, Ph.D. Physiology and Biophysics	Professor	Tenure	George Luck, M.D. Surgery	Assoc. Professor	Non-Tenure
Rui Tao, D.V.M., Ph.D., MS Physiology and Neurobiology	Assoc. Professor	Tenure	Michelle Lizotte-Waniewski, Ph.D. Population Health and Social Medicine	Professor	Non-Tenure
Lawrence Toll, Ph.D. Biological Chemistry	Professor	Tenure	Charles Hennekens, M.D. Population Health	Professor	Tenure
Henriette van Praag, Ph.D. Neuroscience	Assoc. Professor	Tenure	Allison Ferris, M.D. Internal Medicine	Professor	Non-Tenure
Jianning Wei, Ph.D. Biochemistry	Assoc. Professor	Tenure	Michael Dobbs, M.D. Clinical Neuroscience	Professor	Tenure
Ewa P. Wojcikiewicz Physiology and Biophysics	Assoc. Professor	Non-Tenure	Yingcai Wang, M.D., Ph.D. Biomedical Sciences	Research Asst. Prof.	Non-Tenure
Eric Parise, Ph.D. Biochemistry	Asst. Professor	Tenure-Track			

Table 10 lists all full-time faculty associated with the program in Year 1 through Year 5. The following scale is used for estimation in Table 10:

- **One faculty member teaching one section of a course primarily for this program, such as teaching one of the Core courses, is projected to receive 12% reallocated annual effort.**
- **One faculty member teaching one section of an existing course with reallocation of seats from other programs, such as teaching one of the Elective courses, is projected to receive 12% annual effort.**
- **One faculty member mentoring a new student or supervising one PhD dissertation is projected to receive 12% annual effort.**
- **One faculty member serving on one of the PhD committees is projected to receive 3% annual effort.**
    - the faculty code associated with the source of funding for the position
    - faculty member's name
    - the highest degree held
    - academic discipline or specialization
    - anticipated participation start date in the proposed program
    - contract status (e.g., tenure, tenure-earning, or multi-year annual [MYA])

- contract length in months
- percent of annual effort that will support the proposed program (e.g., instruction, advising, supervising)

This information should be summarized below in narrative form. Additionally, provide the curriculum vitae (CV) for each identified faculty member in Appendix D.

The College of Medicine Biomedical Science Department has 28 (including research faculty) faculty currently available for this program. Graduate Faculty from clinical neurosciences, emergency medicine, medicine, population health and social medicine, surgery, and women's and children's health are available for the program. All faculty members teaching courses that are primarily design in content are qualified to teach the subject matter by virtue of professional licensure, board certification, or by education and equivalent design experience. Refer to Table 10 for existing and anticipated full-time (not visiting or adjunct) faculty who will participate in the proposed program through Year 5.

VI. Estimate of Investment

A. Provide the tuition rate for the proposed program for resident and non-resident students.

Resident/Credit Hour	Non-Resident/Credit Hour
$371.82	$1125.06

If the proposed program will operate as self-supporting, market tuition rate, or establish differentiated graduate-level tuition, per Board of Governors Regulation 8.002, complete Appendix F, Self-Supporting & Market Rate Tuition.

B. Complete the summary table below.

1. **Provide funding sources for Years 1 and 5 of program operation.**
2. **Provide headcount (HC) estimates of student enrollment for Years 1 through 5.**

Projected Costs and Funding Sources
The table below lists the estimated E&G and contracts and grants cost for year 1 through year 5 of the program. Contracts and Grants cost reflect a $30,000/year stipend per enrolled student with tuition included with $52,000 per student.

Implementation Timeframe	HC	E&G Funds	Contracts & Grants Funds	Auxiliary Funds	Philanthropy Funds	Total Cost
Year 1	5	$322,350	$260,000	$0	$0	$582,350
Year 2	6	$406,151				
Year 3	8	$324,928				
Year 4	9	$287,865				
Year 5	10	$335,843	$520,000	$0	$0	$855,843

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Is the infrastructure in place to meet the new degree program requirements, such as hiring faculty and staff, curriculum development, facilities, and funding, before enrollment of students to the program?

☒ Yes

☐ No. If not, is there a plan to establish the infrastructure to support the program? Please describe.

Year 1 Snapshot
In Year 1, total projected costs are $582,350. Five graduate student stipends and tuition costs at $52,000 per year per student for a total of $260,000 will be provided by contracts and grants.

Year 5 Snapshot
By Year 5, total projected costs increase to $855,843. Ten graduate student stipends and tuition costs at $52,000 per year per student for a total of $520,000 will be provided by contracts and grants.

The Schmidt College of Medicine's has a robust external funding portfolio to support students in the program with more approximately $20 million in active NIH awards and a total of $31 million in grants and contracts. This will ensure a strong and sustainable foundation for graduate assistantships and research support.