

ACADEMIC AND HEALTH AFFAIRS COMMITTEE Thursday, May 8, 2025 3:00 p.m.<sup>1</sup> The Honorable Benjamin Lambert, III Board Room **1213 Clay Street Richmond**, VA

## **AGENDA** (**REVISED**)

## 1. CALL TO ORDER

#### 2. ACTION ITEMS:

2 minutes (3:00 - 3:02 p.m.)

- a. March 21, 2025 meeting minutes
- b. Proposal to establish a new Bachelor of Science (BS) in Robotics and Autonomous Systems degree program, College of Engineering
- c. Proposal to Rename the Department of Biostatistics to Department of Biostatistics and Health Data Science, School of Public Health
- d. Proposal to establish a Master of Science (MS) in Finance degree program, School of Business

#### 3. REPORT FROM THE PROVOST 25 minutes (3:02 – 3:27 p.m.)

- 4. REPORT FROM THE SENIOR VICE PRESIDENT FOR HEALTH SCIENCES 25 minutes (3:27 - 3:52 p.m.)
- 5. REPORT FROM THE VICE PRESIDENT VICE PRESIDENT FOR RESEARCH AND **INNOVATION**

25 minutes (3:52 – 4:17 p.m.)

Dr. V. Dale Jones, Chair

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Dr. Fotis Sotiropoulos, Provost and Senior Vice President for Academic Affairs

Dr. Marlon Levy, Senior Vice President for Health Sciences and CEO VCU Health

Dr. P. Srirama Rao Vice President for Research and Innovation

Dr. Ivelina Metcheva Assistant Vice President for Innovation

<sup>&</sup>lt;sup>1</sup> The start time for the Board of Visitors meeting is approximate only. The meeting may begin either before or after the listed approximate start time as Board members are ready to proceed.

**Faculty Panel Melissa Hale, Ph.D.**, Assistant Professor, School of Medicine **Richard Marconi, Ph.D.**, Professor, School of Medicine **Supriyo Bandyopadhyay, Ph.D.**,

Commonwealth Professor, College of Humanities and Sciences and College of Engineering

#### 6. OTHER BUSINESS

#### 7. ADJOURNMENT

Dr. V. Dale Jones, Chair

Dr. V. Dale Jones, Chair

In accordance with the Board's operating procedures and in compliance with the Virginia Freedom of Information Act, there will be no opportunity for public comment at this meeting.

#### CONFIDENTIAL SUMMARY ACADEMIC AND HEALTH AFFAIRS COMMITTEE OF THE VCU BOARD OF VISITORS May 8, 2025

#### **OPEN SESSION**

#### **ACTION ITEMS:**

- March 21, 2025 meeting minutes
- Proposal to establish a new Bachelor of Science (BS) in Robotics and Autonomous Systems degree program, College of Engineering
- Proposal to Rename the Department of Biostatistics to Department of Biostatistics and Health Data Science, School of Public Health

#### FOR INFORMATION/COMMITTEE REVIEW:

- 1) Items that may be action items at upcoming committee meeting:
  - None
- 2) Items that the board needs to be aware of, but will not require action:
  - None

#### **EXECUTIVE REPORTS:**

Report from the Provost and Senior Vice President for Academic Affairs

• Dr. Fotis Sotiropoulos will provide an update on the One VCU Academic Repositioning initiative and the academic program productivity review.

#### Report from the Senior Vice President for Health Sciences and CEO VCU Health

• Dr. Marlon Levy will provide an update on several academic initiatives on the Health Sciences campus as well as the search for the School of Public Health dean.

#### Report from the Vice President for Research and Innovation

- Dr. Srirama Rao will provide an overview of technology commercialization at VCU titled "Driving innovation to market in the Commonwealth." The presentation will be supported by a panel of VCU faculty:
  - Melissa Hale, Ph.D. Pioneering gene replacement therapies for Muscular Dystrophy
  - Richard Marconi, Ph.D. Developing Lyme disease vaccines
  - Supriyo Bandyopadhyay, Ph.D. Nano-antennas to power generations of medical and communications devices



#### Virginia Commonwealth University Proposed Program Brief Proposal to create a Bachelor of Science in Robotics and Autonomous Systems (BS-RAS)

#### **Overview**

Virginia Commonwealth University (VCU) seeks approval to establish a Bachelor of Science (B.S.) in Robotics and Autonomous Systems to be offered at the Monroe Park Campus in Richmond, Virginia. The program will be administered by the Department of Electrical and Computer Engineering within the College of Engineering.

The proposed degree program develops students' knowledge in designing, implementing, and analyzing robotic and autonomous systems that function in real-world environments. Students will gain skills in mechanical systems, electrical and electronic systems, programming, and computer science. Core courses include topics in robotics, artificial intelligence, control systems, and embedded programming, providing hands-on experience with humanoid robots, collaborative robots, autonomous vehicles, and unmanned aerial systems. By integrating theoretical foundations with practical applications, the curriculum ensures graduates are well-equipped for careers in robotics, autonomous systems engineering, and intelligent machine design. Graduates will be well prepared for roles such as robotics engineer, autonomous systems developer, and control systems engineer.

#### **Delivery Format**

The proposed program will be offered in a face-to-face delivery format.

#### **Target Initiation Date**

Fall 2026

#### **Demand and Workforce Development**

Data from the Bureau of Labor Statistics (BLS) does not track data for Robotic, Mechatronic, and/or Autonomous Systems Engineering occupational titles. Robotic and Mechatronic engineers are listed in the "Engineering, All Other" category–a list of various engineering titles. For this category, the BLS shows that the need for this groups is expected to grow 5% between 2023 and 2033 (10-year outlook). The Virginia Employment Commission (VEC) suggests an expected 4.1% increase in demand between 2023 and 2033. Similarly, the included Lightcast report's six-year (6-year) outlook suggests a 2.3% growth within VA, and 5.3% growth nationally for Robotics and Mechatronic Engineers.

#### **External Competition**

No standalone degree program in Robotics and Autonomous Systems exists at public institutions in the Commonwealth of Virginia. Virginia Tech offers a major in Controls, Robotics, and Autonomy within their existing B.S. in Electrical and Computer Engineering degree program. Virginia Tech also offers a Robotics and Mechatronic major within their B.S. in Mechanical Engineering degree program.

#### **Target Population**

The target audience for the proposed degree program includes students who are interested in uncrewed systems, advanced manufacturing, and healthcare robotics.

#### **Impact on Existing Programs**

The proposed degree program will not replace or eliminate any existing degree programs at VCU. The RAMs Research Team—comprising faculty from Electrical and Computer, Mechanical and Nuclear, Biomedical Engineering, and Computer Science— believe that the program complements, rather than competes with, current departmental offerings.

#### **Impact on Faculty**

The proposed program will require 2.2 FTE faculty instructional effort in the initiation year, rising to 8.1 FTE by the target year 2029-30. The Department of Electrical and Computer Engineering has a total of 21 faculty members.



Four (4) faculty members will teach core and required courses for the proposed program. The Department of Mechanical and Nuclear Engineering has 28 faculty members. Four (4) faculty members will teach core and required courses for the proposed program. The Department of Computer Science has 24 faculty members. Two (2) faculty members will teach the core and required courses for the proposed program.

#### Funding

Faculty from the Departments of Electrical and Computer Engineering, Mechanical and Nuclear Engineering, and Computer Science will teach the courses and operate the labs, which are also required for students in their respective majors. Funding for the new courses in this degree program will be provided by the College of Engineering Dean's Office, which will also allocate resources for the program's administration.

New educational laboratory equipment will be needed for this new degree. The College of Engineering has already begun preliminary budgeting for these needs. The College will request HEETF educational funds from the university for a portion of this new equipment and a proposal for new equipment from the DoD HBCU/MSI Equipment/ Instrumentation grant program is being prepared. The program will be supported enrollment services, library support, and career services already in place as well as faculty support services.

#### Alignment with the VCU Mission

The proposed degree program aligns with VCU's mission by fostering real-world learning, where students will engage in "inquiry, discovery and innovation" that drive the creation of advanced robotic and autonomous systems in sectors such as manufacturing, autonomous vehicles, healthcare, and assistive technologies. These systems are designed to "improve the quality of human life" by increasing efficiency, promoting safety, and performing tasks that are dirty, dull, or dangerous. The program's emphasis on developing technologies that serve humanity aligns closely with the university's commitment to "translational applications and groundbreaking research" that preserve and restore health. In addition, the interdisciplinary nature of robotics—blending engineering, computer science, and health sciences—reflects VCU's focus on "interdisciplinary collaborations that solve society's most complex challenges."

#### Next Steps

April 17, 2025 University Undergraduate Curriculum Committee (UUCC) APPROVEDApril 24, 2025 University Committee on Academic Affairs (UC-AA) APPROVEDMay 1, 2025 University Council (UC) APPROVEDE-vote President's Cabinet (PC) APPROVEDMay 9, 2025–AHAC/Board of Visitors Meeting (BOV)September 5, 2025–Submission to SCHEV and SACSCOC

## PROPOSED ORGANIZATINAL CHANGE BRIEF



#### **Proposed Organizational Change**

Organizational Change: Rename the Department of Biostatistics to the Department of Biostatistics and Health Data Science in the School of Public Health.

#### Overview

Virginia Commonwealth University seeks approval to rename the Department of Biostatistics, housed within the School of Public Health, to the Department of Biostatistics and Health Data Science. This change is in name only and will not affect the organizational structure of the university or the School of Public Health.

## **Proposed Effective Date**

The proposed effective date for the name change is December 1, 2025.

#### **Rationale for the Proposed Change**

The proposed name change reflects the full scope of the department's research activities and faculty expertise. It also aligns with national trends that recognize the integration of data science into the field of biostatistics. This updated name will enhance recognition and better position the department for external partnerships, including those with funding agencies such as the National Institutes of Health (NIH) and the National Science Foundation (NSF).

#### **Impact on Academic Programs**

This organizational change will not affect or alter any existing academic programs within the department. No programs will be modified or discontinued as a result of the name change.

#### **Impact on Resources**

The university has reviewed existing resources, personnel needs, and academic programs needed to change the name of the Department of Biostatistics to the Department of Biostatistics. The interim dean of the School of Public Health has evaluated the resources and determined that the organizational change to rename the department will not negatively impact the existing resources or academic units in the School of Public Health.

## Alignment with the University's Mission

The proposed change supports Virginia Commonwealth University's mission. The Department of Biostatistics and Health Data Science will continue to advance the mission by fostering "interdisciplinary research", promoting "innovative", data-driven health solutions, and preparing students for careers that improve "human life".

## **Resources and Funding Plans to Support the Proposed Change**

The name change will be implemented using the department's currently authorized funds. No changes are planned to faculty or support staffing. Expenses such as signage (internal to the building), printed materials, and marketing will be covered by departmental funds. No additional state resources will be requested.

#### **Next Steps**

- April 24, 2025 University Council Academic Affairs Committee (UCAA) APPROVED
- May 1, 2025 University Council (UC) APPROVED
- Electronic Vote-President's Cabinet (PC) APPROVED
- May 9, 2025 AHAC/Board of Visitors (BOV)
- September 1, 2025- Submission to the State Council of Higher Education for Virginia (SCHEV)

#### Virginia Commonwealth University Proposed Program Brief Proposal to create a Master of Science in Finance

#### **Overview**

Virginia Commonwealth University (VCU) seeks approval to establish a Master of Science (M.S.) degree program in Finance, to be offered at the Monroe Park Campus (MPC) in Richmond, Virginia. The program will be administered by the Department of Finance, Insurance, and Real Estate within the School of Business.

The proposed degree program develops students' expertise in financial analytics, FinTech, and quantitative financial techniques to meet the evolving needs of the financial industry. Students will gain proficiency in financial modeling, AI applications, and FinTech tools, enabling them to analyze data, develop trading strategies, manage risk, and optimize investment decisions. Core courses include Financial Analytics, FinTech and Blockchain, AI in Finance, and Advanced Financial Analytics, providing hands-on experience with modern analytical tools and techniques. By integrating theoretical foundations with practical applications, the curriculum ensures graduates are well-equipped for careers in this rapidly growing field. Students will also be prepared to collaborate effectively with professionals and communicate insights to stakeholders, including management, regulatory bodies, and industry organizations. Graduates will be well prepared for roles such as senior financial analyst, finance manager, and financial data analyst.

#### **Delivery Format**

The proposed program will be offered in a face-to-face delivery format.

#### **Target Initiation Date**

Fall 2026

## **Demand and Workforce Development**

Data from the Bureau of Labor Statistics (BLS) for the field of financial management shows that the need for this field is expected to grow 17% between 2023 and 2033. Additionally, data from the Virginia Employment Commission suggests an expected 15.7% increase in demand between 2022 and 2032 for financial managers. Similarly, for the field of financial and investment analysis, BLS data suggests a 10% increase between 2023 and 2033. Virginia Employment Commission data between 2022 and 2032 suggests a 9.5% increase in demand for financial investment analysis.

#### **External Competition**

Similar programs exist at the following State Council of Higher Education for Virginia (SCHEV) institutions: George Mason University, Christopher Newport University, and William & Mary University.

#### **Target Population**

The target audience for the M.S. in Finance program includes students with degrees in finance, economics, mathematics, statistics, or engineering who want specialized training in financial analytics before entering the job market. The degree program is also intended for early- and mid-career professionals who want to develop or deepen their finance knowledge and gain skills in financial analytics.

#### **Impact on Existing Programs**

The proposed MS in Finance expands upon the MS in Business with a concentration in Finance. If approved, the concentration will be discontinued. While the MS in Finance is related to the MDA in Decision Analytics, the latter has a broader business focus. The new program will not impact or replace any existing degree programs at VCU, and no degree programs will be closed as a result of its implementation.

#### **Impact on Faculty**

The Department of Finance Insurance and Real Estate has a total of 15 faculty members. Four (4) faculty members will teach core and required courses for the proposed MS in Finance program. Three (3) adjunct faculty will be utilized to initiate and sustain the proposed degree program.

## Funding

The proposed program will require 2.6 FTE faculty instructional effort in the initiation year, rising to 3.1 FTEs by the target year 2028-29. The Department of Finance Insurance and Real Estate in the School of Business will be the primary funding source to initiate and sustain the proposed degree program. The program will be supported by resources already in place to sustain existing academic programs, including student support services (enrollment services, library support, and career services) and faculty support services. No new resources beyond what is already in place will be needed.

#### Alignment with the VCU Mission

The proposed degree program aligns with VCU's mission by fostering real-world learning, inquiry, discovery, and innovation in financial analytics. Through cutting-edge techniques such as AI, machine learning, FinTech, and blockchain technology, the curriculum prepares students to analyze financial data, instruments, and markets with precision and critical insight. By advancing "interdisciplinary" knowledge and practical applications, the program enhances VCU's societal impact, empowering graduates to drive meaningful change in the financial sector. Additionally, the program supports the university's commitment to "economic vitality" by equipping students with advanced financial decision-making skills that contribute to business growth and community prosperity.

#### **Next Steps**

December 10, 2024 University Graduate Curriculum Committee (UGC) - APPROVED March 27, 2025 University Committee on Academic Affairs (UC-AA) APPROVED April 10, 2025 - University Council (UC) APPROVED April 14, 2025 or E vote President's Cabinet APPROVED May 9, 2025 - Board of Visitors Meeting (BOV) September 5, 2025 - Submission to SCHEV and SACSCOC, respectively



## **PROGRESS TO DATE**

# Future-Proofing VCU's Academic Enterprise

A One-Year Report on Implementing Academic Repositioning Recommendations

**Fotis Sotiropoulos, Ph.D.** *Provost and Senior Vice President for Academic Affairs* 

VCU Board of Visitors May 8, 2025



# 2024 Final recommendations Summary



Restructuring the College of Humanities and Sciences



**Convergence Labs at VCU: Expanding Virtual Consortia** 



Renaming University College to form a college for advancing academic innovation



Forging VCU Health Sciences Pathways



**Building on VCU's Community Engagement Work** 





# Restructuring the College of Humanities and Sciences

**What's Happening?** Finding the most effective way to organize VCU's largest academic unit.

## **Progress to date...**

- Moved Dept. of Focused Inquiry to CHS
- Faculty approved reduction in FI courses
- Created School of Life Sciences & Sustainability

# **Benefits**

- Maximizing CHS potential for
- Research leadership
- Curricular innovation
- Student



# Renaming University College to form a college for advancing academic innovation



# **Benefits**

- Advance and scale VCU's vision for transformative, experiential, real-world, and entrepreneurial learning
- Support the bold goals set by VCU's QEP, "Every Ram's a Researcher"
- Respond to emerging job market trends and address rapidly evolving student needs
- Speedy creation and incubation of new credit and non-credit credentials including new concentrations, minors, majors and microcredentials.

Progress to date...

- Academy for Interdisciplinary Innovation (AI2) emerging from University College
- Identified potential fiscal and administrative efficiencies through alignments with existing units



Whether you're a biologist or ballet dancer, find learning that goes beyond the classroom. New researchbased courses allow you to:

**INVESTIGATE:** Gather meaningful information.

**REFLECT:** Consider what the information and your observations are telling you.

**COLLABORATE:** Bring together different perspectives.

**CONNECT:** See how classroom experiences help solve real-world issues.



GO.VCU.EDU/QEP

# **Progress to date...**

Applicable research projects increased

55%

over the past two years



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# Convergence Labs at VCU: Expanding Virtual Consortia

What's happening? Bringing people together virtually to advance *transdisciplinary research, curricular innovation* and *community impact* at scale.

## **Progress to date...**

- Faculty convergence proposals received from across academic enterprise
- Faculty leaders currently are being nominated and identified
- Planning for cluster hires

## **Benefits**

- Promote transdisciplinary research
- Identify faculty cluster hire priorities
- Develop innovative courses, programs, and Open Educational Resources (OERs)
- Respond to RFPs, create synergy around topics, and organize efforts around strategic research priorities
- Enhance community relationships to broaden VCU's local and state impact

# Convergence Labs @ VCU for AI+

University-level Center focused on applied generative artificial intelligence for the public good





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# Forging VCU Health Sciences Pathways

**What's happening?** Strategic engagement between the campuses featuring more intuitive and marketable program connections.

## Progress to date...

- Created accelerated BS in pharmaceutical sciences to pharmacy PhD, saving students one year, increasing pharmacist pipeline
- Increased seats in nursing program
- Exploring direct admissions to other select health science programs

## **Benefits**

- Greater opportunities for undergraduate students who aspire to earn advanced degrees on the VCU Health campus and pursue a career in healthcare
- Creating a greater and more diverse healthcare workforce
- Addressing gaps in healthcare equity and affordable access.
- Increase experiential learning opportunities
- Key Partnerships (Pauley Heart Center, Massey Comprehensive Cancer Center)



# Building on VCU's Community Engagement Work

**What's happening?** Increasing the awareness, coordination and impact of VCU's vast collection of community-engaged efforts.

# Progress to date...

- Applied for Carnegie Community Engaged University reclassification
- Conducted three surveys for faculty and community partners on experience and priorities
- Launched successful advanced certificate in youth development, with support from Continuing and Professional Education.

# **Benefits**

- Enhancing VCU's community impact
- Attracting students and faculty members to projects that deliver impact beyond our campuses
- Re-earning the Carnegie Community Engagement Classification in 2025

# Academic Program Productivity

Assessing the Vitals of Degree and Certificate Programs

## **Definition**

- VCU employs a rolling **annual** process that meets SCHEV's requirement
- The reporting takes into account complex factors including enrollments, graduates, labor market demand, support of VCU's mission, and others

## Purpose

 Ensures VCU's offerings meet academic and market demands and supports strategic enrollment goals

## Outcome

Action Plan that recommends: Maintain, invest, reallocate OR sunset



Current VCU Degree and Certificate Programs Degree programs **186** 

**Certificate programs** 

Total programs **244** 

61



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# Academic Program Review Timeline



# Closures since July 2023 (finished / in-process / teach out)

## Degrees

- M.S. Nursing
- M.Ed. Adult Learning
- B.A. Religious Studies
- B.S. Financial Technology

# Certificates

- Advanced Media Production Technology
- Spanish-English Translation Interpretation (SETI)
- Business Administration
- Care Coordination
- Teaching English to Speakers of Other Languages (TESOL)

9 additional programs are being monitored due to low enrollment or low graduate numbers



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## Potential closures

(pending SCHEV approval of new degree programs)

- B.S., Health, Physical Education and Exercise Science
- M.S., Patient Counseling

30 Programs identified for university investment (Appendix A)

Programs developed in recent years and driving new enrollments include:





# Discussion



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# Appendix



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# APPENDIX A: Programs identified for university investment

## **Baccalaureate**

- BA, Computer Science to open the field to a broader population of students
- BS Ed programs to allow entrance to the teaching profession without a master's degree.
  - BSEd in Secondary Education and Teaching with a double major in either English, History, or Math. Allow for meeting the endorsement requirements for secondary education teachers more efficiently—example of cross unit collaboration.
- BS, Health Services to prepare students with foundational knowledge and skills to serve diverse patient populations and work collaboratively with colleagues in entrylevel healthcare administration positions at hospitals, outpatient clinics, rehabilitation centers, primary care offices, public health and long-term care facilities and other similar settings.
- BS, Pharmaceutical Sciences to equip students with the knowledge, technical and functional skills essential for the development of innovative pharmaceutical products and therapies that will help improve the quality of human life.
- BS, Supply Chain Management to prepare students with a robust foundation for diverse career opportunities covering sourcing, logistics, sustainability, operations, process, quality and inventory management.
- BS to PharmD pathway



## Graduate

- MS, Data Science
- MS, Forensic Science new concentration in Digital Forensics and Incident Response
- MS, Engineering new concentrations (link)
- Ph.D., Computer Science



# APPENDIX A: Programs identified for university investment (con't)

## Certificates

- Cert(Grad), Clinical Genetics Cert
- (Grad), Clinical ResearchCert
- (Grad), Decision Analytics
- Cert(Grad), Genomics Data Science
- Cert(Grad), Healthcare Innovation
- Cert(Grad), Health Equity
- Cert(Grad), Learning Sciences
- Cert(Grad), Media and Leadership
- Cert(Undergrad), Outdoor Leadership
- Cert(Post-Grad), Psychiatric Mental Health Nurse Practitioner
- Cert(Grad), Sustainability, Health, and Health Care

## **Minors**

- Minor in Practical AI
- Minor in AI Studies in the Humanities and Sciences
- Minor in Mixed and Immersive Reality Studies

# In the pipeline for AY 2026-27 or 2027-28

- BS in Digital Forensics and Incident Response
- BS in Robotics and Autonomous Systems
- MS in Artificial Intelligence
- MS in Pharmaceutical Engineering
- MS in Finance, with a focus in financial analytics and financial technology



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# Academic and Health Affairs Committee Report

May 2025

# Marlon F. Levy M.D. MBA SVP, VCU Health Sciences





# **Programmatic Expansion**

- Perfusion Science
- Optometry
- Nursing, Pharmacy, Radiation Technology
- Exploration of additional clinical sites, in particular:
  - School of Medicine
  - School of Nursing



# A Few Highlights

# School of Medicine



99.3 percent match this year with perhaps best program placement in the last decade



Record philanthropy towards fellowships and scholarships



Record number of students involved in research



Two faculty admitted to the national academy of inventor chapter



# Meeting Nursing Workforce Needs

# \$1.5M

Annual funding from VCUHS for faculty support = program expansion





- \* SON must turn away hundreds of qualified applicants/year from VCU due to faculty, clinical, & space limitations
  - \*\* allows greater entry of qualified VCU students thanks to partnership with VCU Health

## 2026

n=260 traditional undergraduate nursing students cohorts/year)\*\*

# **Student Success**

# ) ((

It's nice to know that there's someone out there supporting you — that they have your back and care about you to see your progress through to the end."

JASMIN BLANCO VARGAS Class of 2024





- First-time NLCEX pass rate: >94%
- First-time NP board certification: nearly 100%
- Retention rate: >90%

# "

There are many people who are able to work as health professionals without being limited by their disabilities. There are plenty of ways that we can make the health care industry more accommodating for disabled workers. It's just a matter of believing in those ideas and a willingness to implement them."

#### ERIN NORWOOD



# Making Headlines

#### OG LOCAL NEWS

G X 🔤

Guaranteed admission program aims to help VCU RNs get their B.S.





Hudson Show weekdays at 3 p.m. on **CBS 6!** 

compromising their careers

By: A.J. Nwoko Posted 4:43 PM, Apr 01, 2025 and last updated 4:45 PM, Apr 01, 2025

RICHMOND, Va. - Registered nurses at VCU Health who may not have



Download CBS 6 News App



VCU School of Nursing to nearly double admissions in effort to address national nurse shortage

by: <u>Sahara Sriraman</u> Posted: Apr 9, 2025 / 03:52 PM EDT Updated: Apr 9, 2025 / 03:52 PM EDT

#### SHARE

RICHMOND, Va. (WRIC) — In response to the growing national nursing shortage, Virginia Commonwealth University's School of Nursing is taking a significant step forward: nearly doubling its student admissions this fall.

Advertisement

CAMPUS AND COMMUNITY

# Staying ahead of the curve

The landscape of nursing has changed. So have the needs of students. Here's how the VCU School of Nursing is adapting.

By Caitlin Hanbury

LOCAL NEWS

G 🗶 🖂

VCU opening up admissions to 120 additional nursing students this fall as shortage continues



# New Dean for School of Public Health Monica Swahn, Ph.D.

• Kennesaw State University, dean and professor of Wellstar College of Health and Human Services

• Distinguished leader in the field of global public health

• Fulbright Scholar for the sub-Saharan HIV program at Makerere University in Uganda and consulting for organizations such as the United Nations Development Program, the World Health Organization, and the Pan American Health Organization

• Centers for Disease Control and Prevention, health scientist and epidemiologist in multiple divisions





# Discussion





# **BRINGING IDEAS TO LIFE**

## **Meet Today's Presenters**

**Thursday, May 8** VCU Board of Visitors Academic and Health Affairs Committee



Richard Marconi, Ph.D. is internationally known for his development of tests and vaccines for Lyme disease, including one used for canines and produced by Zoetis on the market since 2016. His team is working on a vaccine for humans. He is a professor in the Department of Microbiology and Immunology in the VCU School of Medicine. His laboratory is focused on vaccine development and defining the virulence and genetic regulatory mechanisms of pathogenic spirochetes and tick-borne diseases, such as Lyme disease, relapsing fever, leptospirosis, ehrlichiosis and Periodontal disease.

Melissa Hale, Ph.D. is co-founder and chief technology officer at MyoGene Therapies Inc., which seeks to transform gene therapy for limb-girdle muscular dystrophy. LGMD is a disease that leads to progressive muscle loss, respiratory failure and complete loss of mobility - and is without an approved therapy. Hale is also an assistant professor in the Department of Neurology and an investigator at the VCU Center for Inherited Myology Research.





Supriyo Bandyopadhyay, Ph.D., is a professor in the College of Engineering's Department of Electrical and Computer Engineering and in the College of Humanities and Sciences' Department of Physics. He is on the cutting edge of developing next-generation, low-power "nano-antennas," which could change how many communication devices are built and used. His designs have been licensed by Canadian startup Seta Connectivity, which is represented today by product development lead Hanie Kazari, Ph.D.

ott@vcu.edu techtransfer.research.vcu.edu

## VCU TechTransfer and Ventures













GAUZE

STOP BLEEDING



# Bringing VCU Innovation to Market

TechTransfer and Ventures

# VALUE OF TRANSLATIONAL RESEARCH

	Public Benefit	New products and services to treat disease, improv society, support more sustainable environments, and enrich the human experience	
	Recruit and retain talent	Tech Transfer helps <b>attract and retain quality</b> faculty, students, and trainees	
	Funding and prestige	Research leads <b>to funding from Government and</b> private entities, putting more eyes and interest on the university	
Physics graduate student Phillip Glass shows off pressure	Ventures and partnerships	Creating startups offers opportunities to collaborate with innovation partners and contribute to regional economic development	

Physics graduate student Phillip Glass shows off pressure sensors on a glove, part of a suite of wearable prototypes to help patients with Parkinson's disease.



For inventors, benefits include both **professional** (funding support and tenure/promotion) and **personal** (recognition, the satisfaction of making a difference, and revenue/equity)



# **BRINGING IDEAS TO LIFE**

## Performance and achievements in FY '24.



## In TechTransfer and Ventures' lifetime:



# \$33 MILLION

licensing revenue



## Nerve Tape, for sutureless repair of injured nerves

- Market entry in 2024
- One of VCU's most successful licensed products
- Cited by Congress as success story for NIH's Neurological Disorders and Stroke budget justification

# PEER COMPARISON (FY '23)

	Research Expenditures	Invention Disclosure s	Patent Applications	Issued U.S. Patents	Licensing/ Options	Licensing Income	New Startups
	\$479MM	126	165	17	29	\$3MM	7
UNIVERSITY VIRGINIA	\$714MM	150	230	46	67	\$2.9MM	3
	\$596MM	143	159	34	26	\$1.84MM	4
GEORGE MASON UNIVERSITY.	\$173MM	49	84	12	5	\$111,000	4



# THE TEAM







With three full-time licensing managers, VCU TechTransfer and Ventures has one of the smallest teams compared to peer research universities nationwide, which average about 6 full-time managers. Despite its size, VCU remains a top 10 commercialization enterprise among its peers. **Meet the team at the QR code.** 

# A Disruptive Technology of Multifunctional Tiny Antennas and A Business Partnership to Bring Them to Market

Supriyo Bandyopadhyay, Ph.D. Department of Electrical and Computer Engineering





# Antennas and the miniaturization challenge

Antennas are found everywhere – radio, TV, RFID, cell phones, satellite communication, RADAR, self-driving cars.

Fundamental Shortcoming: If you

<u>make them too small, they do not</u> <u>work</u>. Their efficiencies plummet if they are shrunk to dimensions much smaller than the wavelength of the electromagnetic wave they radiate. This is known as the "Harrington Limit"







We have demonstrated a new class of antennas, based on a completely new and unconventional principle, which is no longer subject to the Harrington limit. We could break the limit and exceed it by 144,000 times! Our antennas have dimensions of ~10 mm, slightly larger than the thickness of a human hair. A conventional antenna that could perform equally well would have been as large as a computer monitor.



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# **Extreme Miniaturization**



Electrode pairs clocked with a multi-phase clock for possible beam steering and AESA



By activating different electrode pairs sequentially with a multiphase clock, we can steer the beam in different directions and perform active electronic scanning

## Conventional phased array



10's of meters Credit: Georgia Tech



# Four classes of antennas

Entire gamut of antenna technologies for a wide variety of applications

## Idea to Impact



Expression of interest by Samsung which has requested a proposal for possible funding. Their interest is in energy harvesting.

SAMSUNG



## **TECHNOLOGY READINESS LEVEL (TRL)**





# **MyoGene Therapies: A Faster Path to a Cure**

Transforming Gene Therapy for Limb-Girdle Muscular Dystrophy (LGMD)



# Our Mission and Approach

Dedicated to bringing a curative gene therapy to patients through safe, fast, and accessible innovation.



## Nicholas E. Johnson, MD, MSCI, FAAS Founder/CEO

- VCU Professor; Vice-Chair of Research
- George Bliley Research Chair in Neurology
- Director, Center for Inherited Myology Research
- Director, GRASP-LMGD Consortium
- MD (Arizona), MSCI (Utah), Residency (Rochester)



## Kevin L. Passarello, JD Co-Founder/COO

- Partner, Buchanan Ingersoll & Rooney
- Co-Founder/COO—TRADOS (sold to SDL plc)
- Co-Founder/President—Pong Research (sold to *L* Catterton)
- Co-Founder/CEO—AMP3D (sold to Nihon Kohden)
- Co-Founder—Harvest Equity Partners--\$600m+ in exits
- JD (Georgetown)



## Melissa Hale, PhD Co-Founder/CTO

- VCU Assistant Professor
- Investigator, Center for Inherited Myology Research
- PhD (Florida)



## Ellie Carrell, PhD Co-Founder/ CSO

- VCU Assistant Professor
- Investigator, Center for Inherited Myology Research
- PhD (Rochester)



# Limb-Girdle Muscular Dystrophy: A Complex Disease With **No** Approved Therapies



Over 30 subtypes of LGMD caused by gene mutations impacting muscle function.

LGMD leads to progressive muscle loss, respiratory failure, and complete loss of mobility.



# MyoGene's AAV: A Smarter Approach to Gene Therapy



One-time infusion

Full-length gene replacement

Muscle-specific application

Proven & scalable



# VCU Center for Inherited Myology Research (CIMR)



The CIMR multidisciplinary team is composed of **more than 50 research and clinical care specialists**.

**Over 10 faculty** dedicated to bringing treatments to patients with genetic, neuromuscular disorders

Its **collaborative approach** means the patients benefit from the integration of cutting-edge care with on-site research capabilities.

# Meeting the Need



## Limb-Girdle Muscular Dystrophy (LGMD2C & LGMD2D)

- Devastating diagnoses affecting children and families worldwide.
- Progressive and untreatable neuromuscular diseases.
- Currently impacting 20,000 people globally, causing muscle wasting, mobility loss and reduced quality of life.
- MyoGene is poised to be the first to bring lifealtering therapies to these patients in the next <u>12 months.</u>

# How We Meet the Need

FACTORS	PREVIOUS CHALLENGES	<b>MYOGENE ADVANTAGE</b>	
Liver Toxicity Risk	X High toxicity = trial failures	Safe second-gen vector	
Regulatory Pathway	Primate studies required = slow IND process	Fast track approval with FDA mouse model leniency	
Trial Readiness	X No pre-identified patient cohorts	CHoR/VCU & GRASP-LGMD provide trial-ready patients	



# DISCUSSION



