COMMITEE MEMBERS PRESENT
Dr. Gopinath Jadhav, Co-Chair
Ms. Coleen Santa Ana, Co-chair
Mr. Edward L. McCoy
Rev. Tyrone E. Nelson
Mr. Stuart C. Siegel

COMMITEE MEMBERS PRESENT VIRTUALLY
Dr. Shantaram Talegaonkar

MEMBERS NOT PRESENT
Dr. Tonya Parris-Wilkins, Vice Chair
Mr. Andrew Florance

OTHERS PRESENT
President Michael Rao
Mr. Ben Dendy, Rector
Ms. Carolina Espinal, Vice Rector
Dr. Fotis Sotiropoulos, Provost and Senior Vice President for Academic Affairs
Dr. Art Kellermann, Senior Vice President for Health Sciences and CEO of the VCUHS
Dr. Charles Klink, Senior Vice Provost for Student Affairs
Dr. Tomikia LeGrande, Vice President for Strategic Enrollment Management and Student Success
Dr. Aashir Nasim, Vice President for Inclusive Excellence
Dr. Srirama Rao, Vice President for Research and Innovation
Ms. Jamie Stillman, Director of Strategic Communications, Office of the Provost
Members of the VCU Board of Visitors
Presidential Cabinet of VCU
VCU students, faculty and staff
Member of the Media
CALL TO ORDER
Ms. Coleen Santa Ana, Co-Chair of the Academic and Health Affairs Committee, called the meeting to order at 10:45 a.m.

OPEN SESSION ITEMS
Ms. Santa Ana began by asking the committee to consider items for approval.

On a motion duly made and seconded the following items: 1) Minutes of March 21, 2022 meeting; 2) Proposal to move the Post-Baccalaureate Certificate in Care Coordination from the Office of the Senior Vice President for Health Sciences to the School of Nursing Dean’s Office; 3) Proposal to create a Bachelor of Fine Arts in Emerging Media and Technology in the School of the Arts, Qatar Campus; and 4) Proposal to create a Bachelor of Science in Pharmaceutical Sciences in the School of Pharmacy were approved by a roll call vote:

<table>
<thead>
<tr>
<th>Vote</th>
<th>Ayes</th>
<th>Nays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Coleen Santa Ana, Co-Chair</td>
<td>X</td>
<td></td>
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<tr>
<td>Dr. Gopinath R. Jadhav, Co-Chair</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mr. Edward L. McCoy</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Rev. Tyrone Nelson (not available)</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Mr. Stuart C. Siegel</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Dr. Shantaram Talegaonkar</td>
<td>X</td>
<td></td>
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</tbody>
</table>

A copy of the proposals are attached hereto as Attachment A and is made a part hereof.

REPORTS
Provost and Senior Vice President for Academic Affairs Fotis Sotiropoulos provided a report on current faculty retention trends and the initiatives in place for ensuring an infrastructure for continued faculty development. A copy of Dr. Sotiropoulos’ presentation is attached hereto as Attachment B and is made a part hereof.

Dr. Tomikia LeGrande, vice president for strategy, enrollment management and student success, provided an update on fall enrollment to date.

Dr. Art Kellermann, senior vice president for health sciences and CEO VCU Health, provided an update on faculty performance and accountability in the health sciences and its alignment with the research strategic plan and with the university’s mission to the Commonwealth. A copy of Dr. Kellerman’s update presentation is attached hereto as Attachment C and is made a part hereof.

Dr. Sriram Rao provided a report on VCU’s Research Enterprise that covers an update on technology commercialization including benchmarking (state and nationally) and current/future impact and its applications. A copy of Dr. Rao’s presentation is attached hereto as Attachment D and is made a part hereof.
ADJOURNMENT
There being no further business, Ms. Santa Ana adjourned the meeting at 12:15 p.m.
Proposal
The Virginia Commonwealth University seeks approval to move the Post-Baccalaureate (Graduate) Certificate in Care Coordination from the Office of the Senior Vice President for Health Sciences to the School of Nursing Dean’s Office.

Overview
The Post-Baccalaureate (Graduate) Certificate in Care Coordination was approved by the State Council of Higher Education for Virginia in February 2017. The purpose of the certificate program is to educate healthcare professionals in concepts and best practices of care coordination. Upon successful completion of the program, graduates are equipped to help patients and their families who are at risk for excess use of health care to navigate the complex interface among providers, insurers, governmental programs, and community based organizations.

While the certificate is an innovative academic program that provides important training for the future of healthcare. Enrollment has been low despite multiple efforts to attract and retain more students. Moving the certificate to the School of Nursing will allow that academic unit to align recruitment efforts with other ongoing recruitment efforts and provide more support services to the students. In addition, there may be opportunities to align other nursing offerings with certificate offerings, for example a track in care coordination for masters level students.

This proposed change was presented at the November 4, 2021 IPE Advisory Committee meeting which included leaders from College of Health Professions, Dentistry, Medicine, Nursing, Pharmacy, and Social Work. No concerns were indicated.

The Center for Interprofessional Education and Collaborative Care notified the Office of the Senior Vice President for Health Sciences, including Arthur Kellermann on October 21, 2021, and noted no concerns.

Method of Delivery
All courses required for the Post-Baccalaureate (Graduate) Certificate in Care Coordination are delivered in an online delivery format. This organizational change will have no impact on the method of delivery.

Target Implementation Date
July 1, 2022

Demand and Workforce Development
In large part due to the changing healthcare climate from the Affordable Care Act’s (ACA) goal to reduce 30-day preventable hospital readmissions, care coordination has been recognized as a clear societal need in which healthcare professionals need to be better trained in best practices. The Agency for Healthcare Research and Quality (AHRQ) responded by proposing a set of care coordination measures to guide best recommended practices. To say care coordination is a challenging job is an understatement as care coordinators must solve a multitude of intensely complex barriers to patient care every day. Further proving the national support of the care coordination role, the Centers for Medicare and Medicaid Services (CMS) have recognized that care coordination is a critical component of primary care that will contribute to better health of patients and reduced spending. In a policy brief by the American Academy of Nursing’s Care Coordination Task Force, the need for workforce development is clearly delineated as a specific recommendation to help improve sustainability of care coordination. This certificate program is structured to meet not only the recommendations of the AHRQ’s Mechanisms for Achieving Care Coordination in the Care Coordination Measures Atlas, but also to provide the
successful graduate with practical exposure to how to facilitate safe and effective care transitions. Typically healthcare professionals are prepared for their role in care coordination by direct immersion with very little to no formal training, so this curriculum will allow students to have a measurable level of knowledge necessary to utilize effective care coordination strategies. Therefore, participants and employers will find certification appealing because it helps to identify them as experts in their field.

**Impact on Existing Programs**
No impact on existing programs. To date, all the certificate students have not been enrolled in other VCU degree programs. Since offering Post-Baccalaureate (Graduate) Certificate in Care Coordination courses independent of the program, a small but growing group of Master of Social Work students have enrolled.

This organizational change will have no impact on these courses nor the participating programs. The Center for Interprofessional Education and Collaborative Care offers non-certificate IPEC courses in which the following programs participate: BSN, PharmD, MD, DDS, DH, MHA, PT, OT, MPH.

The Council on Education for Public Health (CEPH) competency 21 requires an interprofessional course for all Master of Public Health (MPH) students. Currently, IPEC 501: Foundations in Interprofessional Practice is the required course. Due to its more advanced healthcare focus, IPEC 510 is used as an option for physicians enrolled in the MPH program to satisfy accreditation standards. Since 2018, 1-2 Doctor of Medicine (MD) students in the MPH program have enrolled into IPEC 510. Transferring this program to the School of Nursing has no impact on course content.

Master of Science (MS) degree program in Gerontology with a concentration in geriatric care management requires IPEC 516. Again, transferring this program to the School of Nursing has no impact on course content.

**Impact on Faculty**
The move will have no impact on faculty currently teaching in the program. The program director is full-time faculty in the School of Nursing and 0.2 FTE is currently paid by The Center for Interprofessional Education and Collaborative Care to oversee the certificate and teach two courses. The remainder of the faculty are adjuncts who were identified by the course director and hired and also paid by The Center for Interprofessional Education and Collaborative Care.

- Kimberly Davis (program director): IPEC 510 and 515: Interprofessional Communication and the Care Coordinator I and II
- Ross Airington: IPEC 511: US Healthcare and Care Coordination
- Bonita Hogue: IPEC 512: Healthcare Payment Models and Care Coordination
- Mark Robinson: IPEC 513: Ethical and Legal Consideration in Care Coordination
- Patricia Baker: IPEC 514: Hospital Based Care Coordination
- Angel Daniels: IPEC 516: Community-Based Care Coordination

**Funding**
The School of Nursing has the resources needed to sustain the certificate program. FY22 funding for five adjunct faculty and 0.2 FTE of the program director was $49,351, inclusive of respective FY22 fringe rates. The Center for Interprofessional Education and Collaborative Care established competitive adjunct faculty rates that meet current compensation requirements for adjunct faculty engaged in credit instruction (credit hour minimum for J00001 instructors). The Center for Interprofessional Education and Collaborative Care receives no tuition revenue from any of its offerings. Going forward, the tuition revenue for the certificate will be folded into the model for the School of Nursing and other Schools and Colleges. The School of Nursing has the resources to support faculty, administration, and recruitment/marketing.
**Benefit to University**
The Care Coordination Certificate meets the mission and goals set forth in VCU's *Quest 2025: Together We Transform*, such as support for real-world learning (e.g. Capstone Projects), interdisciplinary collaborations, and workforce development that seeks to solve complex needs in healthcare.

State Council of Higher Education for Virginia (SCHEV) approval is not required

**Next Steps**
- **March 1:** Program and Courses Deadline
- **March 22:** Programs and Courses Meeting
- **April 5:** University Graduate Council Meeting
- **April 28:** University Council Subcommittee on Academic Affairs and University Policies Meeting
- **May 5:** University Council Meeting
- **May 2:** President’s Cabinet Meeting
- **May 13:** Board of Visitors

*Proposals may be presented at the President’s Cabinet meeting prior to the University Council to facilitate Board of Visitors review and approval.*
Proposal to create a Bachelor of Fine Arts in Emerging Media and Technology

Overview
Virginia Commonwealth University seeks approval to establish a Bachelor of Fine Arts (BFA) degree program in Emerging Media and Technology at the School of the Arts campus in Doha, Qatar (VCUArts Qatar). The program will be administered by the Dean’s Office in the School of the Arts in Qatar. The purpose of the program is to prepare students to work as designers and artists within a spectrum of correlated emerging media and technology fields. The program will provide students with a foundation in the theory and history of digital media art and design, enabling graduates to engage in critical dialogue and contribute meaningfully to the evolving discourse of their field.

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

Target Implementation Date
Fall 2023

Target Population
The intended target audience for the program is individuals interested in enter into a broad range of professions such as game designer, application designer, creative video editing and directing, 2D and 3D modelers and animators, motion graphics artists, sound designers and performers, interactive media designers, and immersive media consultants, particularly in the Middle East and North Africa Region.

Impact on Existing Programs
The BFA in Emerging Media and Technology is not similar or related to an existing degree program at Virginia Commonwealth University. The BFA in Emerging Media and Technology will not compromise any existing degree programs. No programs will close as a result of the initiation and operation of the program.

Impact on Faculty
Ten full-time faculty will teach in the program. The faculty members teaching program have a combined 70 years of teaching experience in art and design, computerized digital imaging, new media, graphic design, digital animation, and other related disciplines. Each faculty member holds a terminal degree in their respective field.

Funding
Virginia Commonwealth University and the VCU School of the Arts in Doha, Qatar have all of the faculty, classified support, equipment, space, library, and other resources necessary to launch the program. All new hires will be supported by tuition and fees generated through student enrollment. 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 (advising, ALTLab, and CTLE).

Next Steps
April 28 - University Council subcommittee on Academic Affairs and University Policies (UC-AAUP)
May 5 - University Council Meeting
Electronic vote - President’s Cabinet Meeting
May 13 - Board of Visitor's Meeting
Proposal to create a Bachelor of Science in Pharmaceutical Studies

Overview
Virginia Commonwealth University (VCU) seeks approval to create a Bachelor of Science degree program in Pharmaceutical Sciences (BSPS). The purpose of the degree program is to train students to work in entry-level positions, and to serve as a pipeline into advanced programs of study (e.g., M.S. or Ph.D. in Pharmaceutical or Biomedical Sciences; Pharm.D.). Students will develop the appropriate knowledge, skills and abilities to address problems in pharmaceutical sciences.

Delivery Format
The degree program will be offered in a face-to-face delivery format.

Target Implementation Date
Fall 2023

Target Population
The intended target audience for the degree program is individuals interested in working in a variety of settings, including but not limited to, pharmaceutical and biotechnology companies, research facilities, regulatory agencies, and laboratories such as the National Institutes of Health, as well as those interested in pursuing advanced programs of study (e.g., M.S. or Ph.D.; Pharm.D.).

Impact on Existing Programs
Virginia Commonwealth University would be the first public institution in Virginia to offer a standalone BS degree program in Pharmaceutical Sciences. No public institution in the state offers a similar or related degree program. No degree programs will close because of the initiation and operation of the degree program. The degree program will be distinctly different from existing bachelor’s degrees in chemistry and biology because of the emphasis on pharmaceutical science courses.

Impact on Faculty
The School of Pharmacy Dean’s Office will hire one faculty member to serve as program director and advisor and one academic advisor to support the program in its initiation year. Faculty from existing programs will teach courses to support the BSPS degree. These faculty will come from the School of Pharmacy with additional faculty resources from the College of Humanities and Sciences. Adjunct faculty will not be required to initiate or sustain the program. Two graduate assistants are required to initiate or sustain the core courses of the degree program beginning fall 2025. Additional faculty and academic advisors will be hired based on enrollment.

Funding
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 (advising, ALT Lab, and CTLE). All funding will come from school resources and tuition and fees generated through student enrollment.

Next Steps
April 28 - University Council subcommittee on Academic Affairs and University Policies (UC-AAUP)
May 5 - University Council Meeting
Electronic vote - President’s Cabinet Meeting
May 13 - Board of Visitor's Meeting
Faculty are critical to VCU’s mission and the vibrancy of the student and patient experience.

The Future of Faculty: Building a culture of care and commitment to excellence

VCU Board of Visitors | May 12, 2022
Fotis Sotiropoulos, Ph.D.
Provost and Senior Vice President for Academic Affairs
Faculty Groups

Tenured
Tenure Track
Term
Adjunct

Full-Time Faculty: includes tenured, tenure track and term faculty

See appendix for definitions and faculty composition
Current State: Percentage of Female and Minoritized Full-Time Faculty

**Successes:**
- Significant five-year % growth among Black/African American, Hispanic, and Asian faculty.
- VCU’s percentage of minoritized full-time instructional staff is the highest among all VA public institutions.
- VCU’s percentage of minoritized tenured/tenure track faculty is above the average of all VA R1s.

**Challenges:**
- While we are increasing diversity, our faculty is not representative of our student population.
Successes:

- Retention rates are consistent across demographics.
- One- and two-year retention is improving.
- Two-year retention rates for tenured/tenure track faculty are higher than the overall rate.

Challenges

- At year three, we are losing nearly 25% of new faculty, which carries implications for costs, faculty collaborations, and student success.
Current State: Percentage of Full-Time Faculty Turnover

**Successes:**
- Turnover rates for minoritized and tenure track faculty are lower than the overall rate.

**Challenges:**
- Turnover rate is steady rather than declining.
- National data indicate that faculty cite quality of colleagues, salary, and leadership style as important factors influencing retention.
Goals by 2028

**Diversity:** Reduce the imbalance in faculty diversity compared to student diversity.

**Retention:** Increase retention of full-time faculty overall with a particular focus on year two and three.

**Enhanced Faculty Experience:** Implement year long onboarding and multi-pronged approaches to mentoring.

**Collaboration:** Increase engagement opportunities for transdisciplinary teams to advance innovative teaching & research.

**Integration of Faculty Data:** Institute a culture of using data to inform strategies to support and retain faculty.

“...We (partner and faculty) felt valued with our salaries, and we also felt invested in by the University so that our talents and passions could be utilized. We were also brought into conversations about what we could be a part of and how our careers could grow and how we could make an impact. We were given the runway to build and create initiatives, programs, and/or centers to further help develop the VCU culture and make VCU and the Richmond community a more compassionate and better place to work, live, and thrive.

- Recently Retained School of Business, Associate Professor
This is a scholarly analytic tool that incorporates nationwide information for discipline specific benchmarks to recognize excellence and generate discussions for opportunities.

In this example of one VCU department, there are many early-mid career faculty with research/scholarly activity above the mean of all national institutions.

This information can guide retention, coaching strategies and inform development plans.
Jay Albanese, Ph.D. is a professor in the L. Douglas Wilder School of Government & Public Affairs and 2022 recipient of a State Council of Higher Education for Virginia Outstanding Faculty Award.

He is the epitome of excellence both inside and outside of the classroom. It is the rare professor who glides seamlessly across international and national professional and academic audiences, while being dedicated to changing the lives of students. Susan Gooden, Dean, L. Douglas Wilder School of Government and Public Affairs
The Full Circle Faculty Learning Community provides the opportunity for faculty to explore, question, and prepare for promotion to Professor. Sharing this (virtual) space with others helped me prioritize time to reflect on my professional trajectory, contribution and impact -- and focus on what a path to promotion might look like for me.

- Participant in Spring 2022 Faculty Learning Community to discuss and develop a plan for promotion to full professor

See appendix for examples of tactics that support faculty success strategies.
ATTACHMENT C

VCU Health Sciences

Dr. Art Kellermann
Senior VP Health Sciences & CEO VCU Health System
May 2022
Two Organizations: One VCU

VCU Health System Authority
- Hospitals
  - VCU Medical Center
  - VCU Health Community Memorial Hospital
  - VCU Health Tappahannock Hospital
- Physician Groups
  - VCU Health CMH Physicians
  - VCU Health MCV Physicians
- Other
  - VCU Health Ambulatory Surgery Center
  - VCU Health Children’s Services at Brook Road
  - VCU Health Continuing Education

VCU Health Sciences
- College of Health Professions
- School of Dentistry
- School of Medicine
- School of Nursing
- School of Pharmacy
- Research Centers and Institutes
  - VCU Johnson Center for Critical Care and Pulmonary Research
  - VCU Massey Cancer Center
  - VCU Health Harold F. Young Neurosurgical Center
  - VCU Health Hume-Lee Transplant Center
  - VCU Health Pauley Heart Center
  - VCU Medical Center Evans-Haynes Burn Center
  - VCU Medical Center Trauma Program

VCU Colleges and Schools
- College of Engineering
- College of Humanities and Sciences
- Graduate School
- L. Douglas Wilder School of Government and Public Affairs
- School of the Arts
- School of Business
- School of Education
- Richard T. Robertson School of Media and Culture
- School of Social Work
- School of World Studies
The Power of Partnerships
By the Numbers (FY21)

1,079
Licensed Beds

200+
Clinical Specialties

1,079
Licensed Beds

13,000+
Team Members

800+
Physicians

500+
Advanced Practice Professionals

200+
Clinical Specialties

19
Clinical Departments

548
Patients enrolled in clinical trials

2,591
Patients in research studies

394
Studies open to enrollment

244
Clinical trials open to enrollment

$362.9M
Total Amount of Research Awards

4,119
Total Students

782
Total Residents*

26.2%
Health Professions

28.4%
Medicine

12.3%
Dentistry

11%
Pharmacy

22.1%
Nursing

*as of Fall 2021
Our formula for success

• Recruit, build, and retain stars
• Nurture a culture of teamwork, transparency & accountability
• Recognize, celebrate and reward faculty achievement – individually and as teams
• Remediate underperformers who want to improve. Repurpose those who are better suited to different roles
• Remove obstacles and impediments to faculty, staff and student success
• Relentlessly market that VCU an ideal place to make a difference
Recent Additions to Our Leadership Team

- **Mike Roussos**, President, VCU Medical Center
- **Silvia Munoz-Price, M.D., Ph.D.**, Chief Quality and Safety Officer, VCU Health
- **David Chelmow, M.D.**, Professor of Ob/Gyn; Interim Dean, VCU School of Medicine
- **Brett McMillan**, VP Revenue Cycle, VCU Health
- **Michael Elliott, Pharm.D., MSHA, FACHE**, Chief Operating Officer, VCU Health (effective May 15!)
- **Brian Jenkins**, Chief Real Estate Officer, VCU Health
- **KC Ogbonna, Pharm.D., MSHA**, interim Dean designee, VCU School of Pharmacy
- **Shari Barkin, M.D., MSHS**, Chair designee, Dept of Pediatrics & Physician-In-Chief, CHoR
- **Lyndon Cooper, DDS, PhD.**, Dean, VCU School of Dentistry
VCU Health System Strategic Plan Pillars: FY2023-FY2028
Goals, Objectives and Enablers

**Workforce Wellness**
• We commit to strengthening our work culture to be supportive, inclusive, equitable and innovative.

**Patient Centered Care**
• We provide patients with prompt access to safe care; a great experience, and optimal clinical outcomes across the VCU Health Continuum.

**Advance Health Equity**
• We provide equitable care to all patients and communities while acknowledging their unique needs.

**Innovative Research & Education**
• To improve health through exceptional and innovative discovery, training and patient care.

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**Strategic Enablers**

- Operations and Facilities
- Safety and Quality
- Clinical Leadership
- Marketing & Communications
- Strategic Growth Governance
- Financial
- DEI and HR teams
- Technology
- Analytics & Data Management, EPMO
For us, this isn’t a business. It’s our mission
Research Enterprise Briefing

P. Srirama Rao, Ph.D.
Vice President for Research and Innovation | May 12, 2022
One VCU Sponsored Research - YTD Trends

Variance (YTD) from FY2021: $35.3M (14% ▲)

FY18 - FY22

Total Sponsor Costs

$400M
$300M
$200M
$100M
$0M

Fiscal Month

Year-over-Year Growth in Sponsor Dollars

Current FY results are through May 6, 2022.

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<th>Year</th>
<th>Direct</th>
<th>Indirect</th>
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<td>$294,294,018</td>
<td>$362,906,366</td>
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<tr>
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<td>(FY21 YTD: $258,936,521)</td>
<td>$362,906,366</td>
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<td>2020</td>
<td>(FY20 YTD: $243,219,190)</td>
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<td>2019</td>
<td>$310,216,377</td>
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<td>2016</td>
<td>$271,199,199</td>
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Annual Growth Rate Over Previous Year

Only completed fiscal years. 2016 rate not shown because 2015 data not included.

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<td>2021</td>
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<td>2019</td>
<td>14%</td>
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<tr>
<td>2018</td>
<td>-2%</td>
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<tr>
<td>2017</td>
<td>2%</td>
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YTD: May 6, 2022
Technology Commercialization

10 years of impact

FY2021

- New products to market: 49
- Licensing revenue: >$28M
- Invention disclosures: 1,213
- Patents filed: >1,540
- Licenses/Options: 172
- Patents issued: 192
- Start-ups: 55+
- In start up funding: $70M

- $3.76M
FY2020 Technology Commercialization
Virginia R1 Universities Peer Analysis*

### Start-ups
- UVA: 6
- VT: 6
- GMU: 4
- VCU: 7

### Licensing Income
- UVA: $3.3M
- VT: $1.4M
- GMU: $0.17M
- VCU: $2.5M

*Source: FY2020 AUTM data
AUTM is the Association of University Technology Masters*
## FY2020 Technology Commercialization

**Virginia Peer Analysis**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Research Expenditures</th>
<th>Invention Disclosures</th>
<th>Patent Applications</th>
<th>Licenses + Options</th>
<th><em>Licensing Income</em></th>
<th>Patents Issued</th>
<th>Start-ups</th>
<th>Licensing FTEs</th>
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<tr>
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<td>133</td>
<td>128</td>
<td>22</td>
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<td>UVA</td>
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<td>241</td>
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<td>83</td>
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<td>$0.17M</td>
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Source: FY2020 AUTM data

*Royalties, out-licensing, equity*
## Technology Commercialization

FY2020 Peer Analysis of 19 Public Universities

### #3 start-ups, #4 patent applications, #5 invention disclosures, #8 licensing income

<table>
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<tr>
<th>INSTITUTION</th>
<th>TOTAL RES. EXPENDITURES</th>
<th>INVENTION DISCLOSURES</th>
<th>PATENT APPLICATIONS</th>
<th>LICENSES &amp; OPTIONS</th>
<th>LICENSING INCOME</th>
<th>ISSUED PATENTS</th>
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<td>Medical College of Wisconsin</td>
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<td>67</td>
<td>14</td>
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<tr>
<td>Utah State University</td>
<td>$304,255,724</td>
<td>51</td>
<td>26</td>
<td>22</td>
<td>$1,698,829</td>
<td>11</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Temple University</td>
<td>$299,707,000</td>
<td>92</td>
<td>91</td>
<td>20</td>
<td>$1,191,573</td>
<td>22</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>University of Hawaii</td>
<td>$296,887,000</td>
<td>65</td>
<td>42</td>
<td>13</td>
<td>$220,647</td>
<td>10</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Virginia Commonwealth University: $283M (133 128 22 $2,480,057 17 7 4)

University of Oklahoma: $287,151,848 (51 51 5 $3,832,716 15 2 4)

University of Connecticut: $280,131,000 (102 126 14 $838,713 24 3 3.5)

University of Kansas: $275,401,741 (62 103 35 $8,087,081 27 4 5)

Medical University of South Carolina: $271,300,000 (156 56 19 $1,010,541 20 3 4)

Oregon State University: $268,385,000 (100 79 51 $3,800,619 26 9 4)

Mississippi State University: $264,526,000 (23 20 10 $164,000 1 3 3.75)

Clemson University: $263,403,000 (69 39 13 $315,578 12 5 3)

University of Cincinnati: $262,444,482 (148 117 23 $791,235 36 4 4.3)

Auburn University: $255,281,000 (60 113 22 $4,609,824 17 1 2.6)

University of New Mexico: $243,375,266 (127 258 47 $52,341,706 46 4 5)

Wayne State University: $243,259,000 (47 67 7 $817,203 23 0 2)

VCU Peer Rank (out of 19): 8 5 4 7 8 11 3 8

VCU National Rank (out of 183): 81 66 63 89 89 106 35 90

Source: FY2020 AUTM data
In the past 10 years, we've seen 55+ start-ups from various institutions. The graph shows the percent of licenses going to start-ups, with the University of South Florida leading at 30%, followed by the University of Oklahoma at 40%, and the Virginia Commonwealth University at 55%.

Key points:
- **55+ Start-ups**
- **8 products**
- **$76 Million in funding**

Source: FY2020 AUTM data
VCU Research drives innovation to the marketplace

VCU Start-ups over the past 10 years

~60+ Startups | ~$80M Funding | 8 Products
Impactful Innovators and Entrepreneurs

- Wound Healing Patch
- Clotting Bandage
- Sickle Cell Drug
- Lyme Disease Vaccine
- Venting and Feeding Device for Infants

- Biofilm for Infection Prevention
- Automated Detection of Sexual Assault DNA
- Early Detection of Parkinson’s Disease
- V-Coach – App for Mindfulness
- VR for Improving End of Life Quality
Therapies for sickle cell, cancer, inflammation

**Anti-sickling compounds**
- Therapeutics for Rare and Neglected Diseases (TRND): Pilot Project on SCD
  - Compound originally identified at VCU
  - Structure: 5-hydroxymethyl-2-furfural (Aes-103)
  - Binds to sickle hemoglobin and increases its oxygen affinity
  - Stage of project: late preclinical
- One VCU

**Anti-cancer**
- Teclison
- InterLeukin
- QUENCH MEDICAL
- Enzo

**Cardiovascular and anti-inflammatory**
- DURECT
- Genentech

A Member of the Roche Group
Two revolutionary VCU products Innovation Gateway guided on their journey to the market:

Vanguard® crLyme A Chimeric Recombinant Vaccine for Dogs: the best-selling Lyme disease vaccine for dogs in the U.S.
- $5.2M in total royalties in 6 years
- Sponsored Research Funding > $8 million
- Pipeline of new products:
  - Diagnostics products (Lyme, Leptospirosis, Anaplasmosis)
  - Human Lyme vaccine
  - Vaccines for other tick-borne diseases (Leptospirosis, Anaplasmosis)

ImmunoCAP Tryptase: the only WHO-recommended and FDA approved Assay for Systemic Mastocytosis
- $5.5M in total royalties
- ImmunoCAP Tryptase: the only WHO-recommended and FDA approved Assay for Systemic Mastocytosis
VCU Start-up Pipeline

**Maturity Level**

- **Coaching Need**
  - **Low**
  - **High**

**Challenge:** Funding, equity, royalty

- **Life science**
  - **higher potential**
  - **Life science**
# VCU Innovation Gateway:

## Average start-up terms by select universities (for devices and therapeutics)

<table>
<thead>
<tr>
<th>University</th>
<th>Equity</th>
<th>Royalty</th>
<th>Third Party Payments</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCU</td>
<td>5-10%</td>
<td>3-7%</td>
<td>35-15%</td>
<td>Anti-dilution to $1-2MM; 15% equity before 2010 and start-ups raised VC$; One going to IPO - 15% equity and 3% royalty for therapeutics</td>
</tr>
<tr>
<td>Georgia Tech</td>
<td>2-5%</td>
<td>3-5%</td>
<td>35-10%</td>
<td>Do not share equity with inventors/founders. Nothing special for engineering inventions</td>
</tr>
<tr>
<td>UVA</td>
<td>5-7%</td>
<td>2-4%</td>
<td>35-15%</td>
<td>Sublicensing is 20-25% on average. Anti-dilution through Series A.</td>
</tr>
<tr>
<td>NYU</td>
<td>5-10%</td>
<td>4-7%</td>
<td>25-10%</td>
<td>Do not share equity with inventors/founders</td>
</tr>
<tr>
<td>Columbia</td>
<td>5%</td>
<td>3-5%</td>
<td>market</td>
<td>Anti-dilution through Series A</td>
</tr>
<tr>
<td>Univ Michigan/ Michigan State</td>
<td>3-10%</td>
<td>5-10%</td>
<td>40-25%</td>
<td>Anti-dilution through $1.5-2 MM</td>
</tr>
<tr>
<td>AUTM averages</td>
<td>4%</td>
<td>2-6%</td>
<td>25%</td>
<td>$ are made from royalties not from cashing equity; usually from 1 patent</td>
</tr>
</tbody>
</table>
VCU Commercialization Vision for Growth:

Goals for the next 6 years

**Present State (2022)**

- **$3.7M** Licensing revenues/year
- **Inconsistent growth** Issued patents
- **10-20% yearly growth** Cash revenues
- **6-7 start-ups** Slow growing, faculty-run

**Future State (2028)**

- **$8-10M** Licensing revenues/year
- **40+** Issued patents/year
- **1-2** VC rounds or Exits/year
- **10-15 start-ups** Per year
- **Fast growing start-ups** Fast-funded; CEO-run
How do we achieve this vision?

Communications and Connections

- Communicate the program to VCU colleges, schools and faculty inventors
- Engage senior VCU leadership and VCU alumni office – mentors, access to advisory boards, corporate connections, smoothing VCU policy and process

Ecosystem Support
Talent, capital, infrastructure

VCU

Team

Highly experienced
New Ventures Director

Entrepreneurs-in-Residence and experienced CEO candidates

Support from Innovation Gateway team – vetting, triage, IP protection

VCU student engagement – bring talented students into spinouts, perhaps support selected student startups

Capital

VCU PoC; VIPC
CCF, The Catalyst

SEED CAPITAL
Build access to RVA and VA Angels

VENTURE CAPITAL

RVA
NorthernVirginia
NYC
New York City

NorthernVirginia

BOSTON

Venture Fund?
(Future)
Leap of Faith: Former VCU cancer researcher becomes CEO of a company studying therapy he invented

VCU researcher developing methods to mass-produce eco-friendlier aerogels

Meet The Nuzzi, a VCU-born breastfeeding aid
Questions and Comments