Committee Minutes

ACADEMIC, RESEARCH, AND STUDENT AFFAIRS COMMITTEE
Inn at Virginia Tech, Latham Ballroom
10:00 – 11:30 a.m.
April 4, 2022

Committee Members Present: Melissa Nelson (chair), Anna James, one board member participated remotely for personal reasons in accordance with the Code of Virginia §2.2-3708.2(A)(1)(2). Ms. Chenery participated remotely while on a family vacation and was located at 9423 Old Oregon Inlet Road, Nags Head, NC.

Committee Members Absent: Jeff Veatch, Serena Young (staff senate representative).

Board Members Present: Rector Tish Long, Holli Drewry (A/P representative), Paolo Fermin (undergraduate student representative), Phil Miskovic (graduate and professional student representative), Robert Weiss (faculty representative).

Guests: Janice Austin, Callan Bartel, Laura Belmonte, Rosemary Blieszner, Eric Brooks, Kevin Carlson, Cyril Clarke, Jon Deskins, Jeff Earley, Corey Earles, Kari Evans, Ron Fricker, Mike Friedlander, Rachel Gabriele, Martha Glass, Cathy Grimes, Dave Guerin, Rebekah Gunn, Kay Heidbreder, Rachel Holloway, Byron Hughes, Sharon Kurek, Lee Learman, Steve McKnight, Natalie Melville, Scott Midkiff, Ken Miller, Bernadette Mondy, Kim O'Rourke, Mark Owczarski, Ellen Plummer, Jon Porter, Robin Queen, Chris Rahmes, Paul, Richter, Julie Ross, Tim Sands, Niesha Savory, Frank Shushok, Aimée Surprenant, Don Taylor, Judy Taylor, Tracy Vosburgh, Paul Winistorfer, Chris Yianilos, Jia-Ray Yu.

Tour and Update on Pamplin College of Business

Prior to the convening of the ARSA Open Session, committee members toured Holden Hall and the Data and Decision Sciences (D&DS) building. Pamplin College of Business (PCOB) is one of several colleges engaged in the delivery of academic programs in the D&DS building. Provost Clarke introduced Kevin Carlson, PCOB associate dean for research and faculty affairs, and Elizabeth Mitchell, PCOB assistant dean of advancement. As part of the Global Business and Analytics Complex, the D&DS building will support faculty members from business, computer science, and statistics to advance instruction and scholarship in data analytics and decision sciences. The design of the building includes a commitment to shifting the learning environment to one that is student-focused and incorporates interaction, collaboration, and experiential learning. The building houses three types of collaboration spaces: team rooms, trading labs, and a commons.

OPEN SESSION

1. Welcome. M. Nelson, chair of the committee welcomed board and committee members.

2. Review and Approval of Open Session Agenda. The committee unanimously approved to remove from the consent agenda and place on the regular agenda the
Resolution to Approve Reorganizing the Colleges of Architecture and Urban Studies, Engineering, and Liberal Arts and Human Sciences and to Approve Renaming the College of Architecture and Urban Studies as the College of Arts, Design, and Architecture.


The committee unanimously approved the Open Session including the Consent Agenda as amended.

4. Resolution to Approve Reorganizing the Colleges of Architecture and Urban Studies, Engineering, and Liberal Arts and Human Sciences and to Approve Renaming the College of Architecture and Urban Studies as the College of Arts, Design, and Architecture. The committee unanimously approved to amend the Resolution to Approve Reorganizing the Colleges of Architecture and Urban Studies, Engineering, and Liberal Arts and Human Sciences and to Approve Renaming the College of Architecture and Urban Studies as the College of Arts, Design, and Architecture such that the new name of the college is the College of Architecture, Arts, and Design rather than the College of Arts, Design, and Architecture.

The committee unanimously approved the resolution as amended.

4. Provost’s Update. C. Clarke, executive vice president and provost, updated the committee on several initiatives. Student mental health remains a concern that has been additionally aggravated by the pandemic. From August 15, 2021 to March 14, 2022, professional staff at the university’s Cook Counseling Center have seen 4,554 student clients averaging five visits per client. The top three client concerns are anxiety, stress, and depression. Significant strides have been made in awareness, education, prevention, and intervention as recommended by the provost’s 2018 Mental Health Task Force. In addition, the university is moving forward with innovations in student mental health support by focusing resources on residential well-being that embeds five new counselors in the residence halls. In another model, the college of veterinary medicine has counselors embedded in the college to attend to student needs. Since 2015, the university has invested $2.7M in new resources for mental health including hiring 18 new, professional, and credentialed counselors. Also, the university will launch a telehealth program that will be available 24/7 and will increase the number and diversity of clinicians available to students, reduce wait times, and increase the number of sessions students may access. Virginia Tech remains committed to student mental health wellness as evidenced by the Cook Counseling Center’s No. 1 ranking for best counseling services in the 2021 edition of the Princeton Review’s Best 386 Colleges.

In the area of graduate student compensation, Provost Clarke shared information regarding the university’s efforts to increase financial support for students that takes into account the cost of living expenses. Achieving this goal will support graduate students in their efforts to focus on their studies without the need for additional financial aid and employment and improves Virginia Tech’s competitiveness for student talent. Provost Clarke and Aimée Surprenant, dean of the graduate school, are appointing a task force.
to formulate a plan to be implemented as soon as feasible within the university’s budget.

Provost Clarke updated the committee on efforts at the university’s Falls Church, VA location. The expectation is that Virginia Tech will execute an agreement to sell or release its interest in its property at Falls Church. The release of the Falls Church property will enable the university to establish a national center for smart construction there. Planning is underway for the relocation of academic programs from the Northern Virginia Center at Falls Church to other facilities in northern Virginia, leased facilities in the region, or to Blacksburg. Provost Clarke and several deans met in-person with faculty and staff to inform them of the timeline, explain the strategic justification for the relocation, alternatives available, and the process whereby decisions will be made.

The university will welcome Dr. Kevin Pitts as the new dean of the College of Science in June and two dean searches are underway. In addition, a search for a vice president of student affairs will occur in the near future.

5. Health Sciences Discussion. C. Clarke and M. Friedlander, Virginia Tech Vice President for Health Sciences and Technology, provided information on the mission-related, strategic initiatives in health and biomedical sciences. The university has the potential to be amongst the best in the world in these areas by building upon a history of accomplishment, a competitive position in the sciences, technology, and engineering. The university is committed to increasing the number of postdoctoral associates and national academy memberships. The development of the health sciences is the university’s largest opportunity gap. Committee members were invited to comment and to provide guidance on how these efforts help the university move forward.

The university is positioned to grow a nationally prominent position in the area of neural development in children. Virginia Tech is expanding its partnership with Children’s National Hospital and initiating a related academic Destination Area project. Expanding the children’s health program in Blacksburg and in Roanoke is a priority for the Fralin Biomedical Research Institute. A panel discussion included Niesha Savory, undergraduate student in the School of Neuroscience, Natalie Melville, graduate student in Translational Biology, Medicine, and Health program, and Jia-Ray Yu, M.D., assistant professor located at the university’s Children’s National Research and Innovation Campus.

6. Agenda Items for June 2022 ARSA committee meeting. Committee members will submit agenda topics for consideration at future meetings.

7. Adjournment.
### Open Session Agenda

Amended during committee meeting: removed resolution from Consent Agenda and placed on Agenda as item #4

**ACADEMIC, RESEARCH AND STUDENT AFFAIRS COMMITTEE**

Inn at Virginia Tech and Skelton Conference Center
10:00 a.m. – 11:30 a.m.

**April 4, 2022**

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<td>A. Approval of November 7, 2021 Meeting Minutes</td>
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<td>B. Report of Reappointments to Endowed Chairs, Professorships, and Fellowships</td>
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<td>*C. Resolution for Exclusion of Certain Officers/Directors</td>
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<td>4. Resolution to Approve Reorganizing the Colleges of Architecture and Urban Studies, Engineering, and Liberal Arts and Human Sciences and to Approve Renaming the College of Architecture and Urban Studies as the College of Arts, Design, and Architecture</td>
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<td>5. Provost’s Update and Discussion</td>
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<td>6. Health Sciences Discussion</td>
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<td>8. Adjourn Committee Meeting</td>
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REPORT

Reappointments to Endowed Chairs, Professorships, or Fellowships (5)

April 4, 2022

The president and executive vice president and provost have confirmed the reappointment of the following faculty to endowed chair, professorship, or fellowship appointments with a salary and/or operating supplement provided by the endowment and, if available, with funds from the eminent scholars match program.

College of Engineering (5)

Roop Mahajan                          Lewis A. Hester Chair in Engineering
Wing Ng                                 Chris C. Kraft, Jr. Endowed Professorship
Ranga Pitchumani                       George R. Goodson, Jr. Professorship in Mechanical Engineering
Danesh Tafti                           William S. Cross, Jr. Endowed Professorship
Christopher Williams                   Electro-Mechanical Corporation (EMC) Senior Faculty Fellowship in Advanced Manufacturing Systems
Provost’s Update

ACADEMIC, RESEARCH, AND STUDENT AFFAIRS COMMITTEE

April 4, 2022

Cyril Clarke, executive vice president and provost, will provide an update.
Panel Discussion: Health Sciences

ACADEMIC, RESEARCH, AND STUDENT AFFAIRS COMMITTEE

April 4, 2022

Cyril Clarke and Mike Friedlander, vice president for health sciences, will lead a discussion of partnerships and opportunities for further growth in health sciences at Virginia Tech.
Mapping the Way Forward
AAU metrics: A tool to measure Virginia Tech strengths and gaps

**Phase I Indicators**
- Competitively funded federal research support
- Membership in the National Academies (NAS, NAE, IOM)
- Faculty awards, fellowships, and memberships
- Citations

**Phase II Indicators**
- USDA, state, and industrial research funding
- Doctoral education
- Number of postdoctoral appointees
- Undergraduate education
Research talent is nationally dominated by those in health and biomedical areas.

- 50% of postdocs nationally are in health and biosciences, compared to 25% at Virginia Tech.

- National Academy of Medicine members comprise 1/3 of the National Academies membership nationally. Virginia Tech has 0 members in the National Academy of Medicine.
An investment in health and biomedical sciences is:

• Strategically aligned

• Optimized for progress
Top 0.1% of world’s most highly cited researchers in all fields
FBRI’s Warren Bickel for cross-field interdisciplinary research
• In FY21, 103 new NIH grants submitted @$35M annual; $159M total

• From FY21, 20 new grants awarded so far @$7M annual; $34M total
Translational Biology, Medicine and Health (TBMH)  
Graduate Students Elevate VT’s Profile at NIH

Cumulative New Virginia Tech NIH Individual Predoctoral Fellowships (F31/F99)

- 77 VT students submitted 119 applications
- Of those, 34 were TBMH students who submitted 51 applications
- 24 awards have been made to VT
- 14/24 awards to TBMH students
- TBMH success rate by applications submitted = 27%; by number of students funded = 41%
Translation to Commercialization

**Rob Gourdie, Ph.D.**
- Wound healing therapeutic peptide
- Next-generation exosome drug delivery

**Samy Lamouille, Ph.D.**
- Advancing treatments for aggressive cancers

**Sarah Snider, Ph.D.**
- Applying behavioral economics in advanced diagnostics for substance use disorders

**Zhi Sheng, Ph.D.**
- Overcoming chemoresistance in aggressive, treatment-resistant cancers

**Rafael Davalos, Ph.D.**
- Cell Separation and Recovery Technology
- Irreversible electroporation to treat cancer

**VT Engineering Faculty**
- VoltMed
Children’s Health Research
FBRI Neuromotor Research Clinic
National Pediatric Rehabilitation Resource Center, headquartered at Fralin Biomedical
Strategies of Development

Altricial

Precocial
VT research on childhood disorders that impact lifespan brain and behavioral health

- developmental disabilities
- early-life quality education
- pediatric brain cancers
- seizure disorders
- brain injuries including pediatric strokes
- nutritional deficiencies
- substance abuse in adolescence
- childhood infections
Complete loss of the X-linked gene CASK causes severe cerebellar degeneration

Paras A Patel, Julia V Hegert, Ingrid Cristian, Alicia Kerr, Leslie E W LaConte, Michael A Fox, Sarika Srivastava, Konark Mukherjee

Journal of Medical Genetics, February, 2022

Selective disruption of trigeminal sensory neurogenesis and differentiation in a mouse model of 22q11.2 deletion syndrome

Beverly A. Karpinski, Thomas M. Maynard, Corey A. Bryan, Gelila Yitsege, Anelia Horvath, Norman H. Lee, Sally A. Moody, Anthony-Samuel LaMantia

Attachment D
Early childhood investment impacts social decision-making four decades later

Randomized Manipulation of Early Cognitive Experience Impacts Adult Brain Structure
Diffuse Intrinsic Pontine Glioma (DIPG)
(2% survival in children)
“Canine gliomas showed high similarity with human pediatric glioma per robust aneuploidy, mutational rates, relative timing of mutations, and DNA-methylation patterns.”
Dravet’s Syndrome Foundation funds FBRI
Researcher’s innovative work on intractable seizure disorder

Sharon Swanger
Molecular pharmacology of brain developmental disorders and seizures
FBRI’s Dr. Brittany Howell studies gut-brain-behavior axis development, and the biological pathways of early experience and maternal influence on infant neurodevelopment.
Identifying and preventing substance abuse and progression to addiction in adolescents

Valuation of peers' safe choices is associated with substance-naïveté in adolescents

Executive functioning and substance use in adolescence: Neurobiological and behavioral perspectives
COVID-19 impact on heart and brain development

Jamie Smyth

ABSL3 Facility - FBRI
Children’s National Research and Innovation Campus
Washington, DC

Virginia Tech & Children’s National Hospital
Pediatric Brain Cancer Research Partnership
2021 Rankings of over 250 Children’s Hospitals in the U.S.

Pediatric cancer
1. Children’s Hospital of Philadelphia
2. Dana-Farber/Boston Children’s Cancer and Blood Disorders Center
3. Cincinnati Children’s Hospital Medical Center
4. Texas Children’s Hospital
5. Children’s National Hospital

Neonatology
1. Children’s National Hospital
2. Children’s Hospital Los Angeles
3. Lucile Packard Children’s Hospital Stanford
4. UCSF Benioff Children’s Hospitals, San Francisco and Oakland
5. Rady Children’s Hospital (San Diego)
Johnson and Johnson JLabs
Children’s National Research and Innovation Campus
Washington DC

Beerse, Belgium  San Diego, CA
Boston, MA     San Francisco, CA
Houston, TX   Shanghai, China
New York, NY  Toronto, Canada
Philadelphia, PA  Washington, DC
New Faculty recruitments Currently Underway at Fralin Biomedical Research Institute
(Building on the Adaptive Brain Destination Area)

Developmental Neuroscience
- Pediatric seizure disorders

Pediatric Brain Cancer
- Genetic therapeutic targets

Metabolism and Obesity
- Genetic basis of metabolic disease susceptibility
Insights into lifespan health through pediatrics

New collaborative – Virginia Tech, Children’s National, Howard University, NIH

3-D health trajectories and related childhood predictors among older adults in China

Artificial intelligence in cancer research, diagnosis and therapy

Long-Term Outcomes Associated with Traumatic Brain Injury in Childhood and Adolescence: A Nationwide Swedish Cohort Study of a Wide Range of Medical and Social Outcomes

Childhood maltreatment predicts adult inflammation in a life-course study

Obesity Etiology

Predicting adult obesity from childhood obesity: a systematic review and meta-analysis

M. Simmonds, A. Llewellyn, C. G. Owen and N. Woolacott

Pediatric Markers of Adult Cardiovascular Disease

Artificial Intelligence-Assisted Prediction of Late-Onset Cardiomyopathy Among Childhood Cancer Survivors

Prospective pan-cancer germline testing using MSK-IMPACT informs clinical translation in 751 patients with pediatric solid tumors
Opportunities going forward

- Major advances to improve the lives and health of all children
- Healthy beginnings through science based interventions
- Increased HHS funding (including NIH)
- Major foundation partnerships and funding
- Increased national donor visibility
- Consilience of strengths in biomedical and health science, computation, engineering, social sciences and veterinary medicine
- Growth of the health science partnership between VT and the Children’s National Hospital
- Health sciences commercialization opportunities for VT faculty and students through Jlabs collaboration
- Enhanced VT presence in the nation’s capitol
- Linkage of research and education activities between VT sites in Roanoke, Bburg and Alexandria with Children’s National in DC
- New training and mentoring opportunities for undergraduate, graduate and medical students
- New opportunities for advances in diversity and inclusion for faculty, staff and students through DC partnerships
Upcoming major funding opportunities in 2022

- NIH Faculty Institutional Recruitment for Sustainable Transformation (FIRST) grant application with Children’s National partners (@$15-20M)

- Chan Zuckerberg Biohub grant application with Children’s National Hospital, Howard University and the NIH (@$250M)

- NIMH Silvio Conte mental health P30 Center grant (@$17M)
Social Memory Development

- Who?
- Familiar (Grandparents) = Relaxed Behavior

- Who?
- Unfamiliar (Stranger) = Hesitant Behavior
Magenta = All newly made proteins in a cell
Cyan = Nucleus of cells containing DNA

Normal

Neurodevelopmental Disorder

DNA → RNA → Protein
Why do some adolescents make unhealthy risky decisions?

\[ E[U] = p^1 \cdot x_1^\alpha + p^2 \cdot x_2^\alpha \]

\[ \hat{p} = \frac{1}{1 + e^{-\beta(E[U\text{ safe}]-E[U\text{ risky}])}} \]

Z = -8
Children’s health challenges

Developmental disorders
Cancer
- Leukemia & Lymphoma
- Brain (CNS) cancers

Diffuse Intrinsic Pontine Glioma (DIPG)

No effective therapy approved to date

Identify cancer dependency genes
> Basic research - understand why?
> Targeting strategies
> Preclinical models
> Clinical Trials

Children’s National Partnership
- Access to clinical resources
- Secure federal funding

Children’s National Research & Innovation Campus (CNRIC) in Washington, DC

Jia-Ray Yu, Ph.D.
Assistant Professor,
Fralin Biomedical Research Institute at VTC
Children’s National Research & Innovation Campus