

COMMISSION ON OUTREACH AND INTERNATIONAL AFFAIRS

Minutes

February 15, 2024; 3:30-4:30 p.m.

120 Gateway/ZOOM

Attendance (in person): Dave Close (Presiding), Jan Helge Bøhn, Guru Ghosh, Penny Muelenaer, Susan Short, Judy Taylor

Attendance (via Zoom): Mike Gutter, Kristin Lamoureaux, Kenner Love, Charles Lowery, Lauren Maghak, Jennifer Nardine, Katalin Parti, Lynn Resler, Megan Seibel, Richard Shryock

Absent with Notice: Francisco Carvallo, Paul Knox, Angela Scarpa

Absent without Notice: Terry Clements, Martin Ochoa, John Richey

Guests: Kathy Hager, Rich Mathieson, Andy Muelenaer, Lori Rose

Welcome and Self-Introductions: The meeting was called to order 3:30 p.m. Dave Close welcomed the group. Self-introductions were made, visual attendance was taken, quorum was established.

1. **Adoption of the Agenda:** Dave asked for a motion to approve the Agenda, Jan Helge Bøhn made the motion to approve; Kristin Lamoureaux seconded; there was no opposition; the Agenda was approved.
2. **Announcement of Approval of Minutes, December 7, 2023:** Minutes from the December 7, 2023 meeting were sent out electronically for edits and were approved electronically. The minutes were sent to the Governance Information System; and can be found on the web (<http://www.governance.vt.edu/>).
3. **Alumni Awards for Outreach Excellence (Individual and Team):** Kimberly Rhodes reported that the Alumni Awards for Outreach Excellence selection committee met and selected a winner for the individual award and the team award. There were three (3) applications for the individual award and one (1) application for the team award.
4. **TEAM Malawi Overview:** Andy and Penny Muelenaer presented on the work that TEAM Malawi has been doing over the past 20 years (**ATTACHMENT A**). Technology Education Advocacy Medicine (TEAM) Malawi provides community wellness in environments with limited resources through community participation. Discussion included the visit last fall by Vice-Chancellor, Malawi University of Science and Technology, Dr. Address Mauakowa Malata; and the MOU that was signed. Based on the United Nations' 17 Sustainable Development Goals (SDGs), work is focused on #2-Zero Hunger; #3-Good Health and Well-being; #6-Clean Water and Sanitation and #9-Industry, Innovation and Infrastructure. Many different disciplines and organizations across Virginia Tech have contributed work for TEAM Malawi. Surveillance assistants in the community are in the communication with people in Malawi and acquiring community trust. Guru mentioned the \$22M grant that USAID contracted with Virginia Tech for youth improvement; Tom Archibald and Joseph Mukuni are leading the project.
5. **Acceptance of Constituent Reports and/or Minutes:**
 - a. **Chairman's Report:** Dave gave the update on the University Council meeting of February 5, 2024 and indicated there were four (4) resolutions that were presented for second reading and voting: Commission on Faculty Affairs-revision of the faculty senate standing committees in the faculty senate constitution; Commission on Research-revision of policy 13040-Virginia Tech human subjects research policy and revision of policy 13005 and 3020 center and institute establishment, oversight and governance and financial and administrative procedures; Commission on staff policies and affairs-resolution to add statement of support for participate in shared governance and profession development to staff job postings. The resolution for first reading was from University Council-revision of University Council bylaws.
 - b. **Virginia Cooperative Extension (VCE):** Mike Gutter gave an overview of VCE's winter conference; 4-H and FFA days in Richmond participants interacted with legislative leadership. Mike indicated he will finish up his tour of the Commonwealth on March 20th where he addresses concerns for communities. VCE is in the early stages for their Agriculture Summit.

- c. **University Committee on International Affairs (UCIA):** Jennifer Nardine gave a summary of the January 22, 2024 UCIA meeting. Updates included the Alumni Awards for International Education, Outreach and Research; the International at Home development of a global badge; the central global website and the global newsletter. For those that want to subscribe, send a notice to globalnews@vt.edu. Additional updates included Theresa Johansson's on-line leadership collaborations; new programming for those that are unable to travel abroad but are able to participate on-line; the living learning photo exhibit located in the library; Pamplin's Fulbright; the Global Strategy Working Group's white paper to upper administration; the formation of the Global Distinction Task Force.

Guru elaborated that the Global Strategy Working Group report has gone to the Provost; and the Global Distinction Task Force will decide how to best position research programs and collaborative metrics. A report is anticipated by the end of April. The Global Strategy Working Group report contained a broad representation of recommendations for financial and reorganization throughout the university. The suggestion was for the University to take some of the suggestions into consideration. Guru gave thanks to Rich Mathieson and the communications team as well Kimberly Rhodes for their work on the slides for the presentation to the Academic Affairs Council.

- d. **Engagement Leadership Council:** Susan Short announced the next Engagement Leadership meeting will be held on March 14, 2024.

6. **Announcements/Commission Board Member Comments:** Susan announced the Engagement Newsletter has been issued, for those that would like to subscribe, please visit outreach.vt.edu. OIA is hosting guest lecturer, Rhondda Thomas from 3:00-4:00 p.m. on March 12, 2024; **registration** is required. The Carnegie Community Engagement Reclassification Leadership team will meet next week to review application requirements, process for application completion and to establish a timeframe and key dates for deliverables. The Engagement Scholarship Consortium is accepting conference **proposals** through April 1st for the 2024 conference in Portland, Oregon, October 7-10, 2024. Virginia Tech will serve as the host institution for the 2025 Engagement Scholarship Consortium annual meeting to be held at The Hotel Roanoke & Conference Center October 5-9, 2025. The Consortium expects between 600-700 participants.

Guru announced that there are some changes in the Alumni Association awards. Some of the existing awards will no longer be funded next academic year. There was a suggestion made that OIA could take on supporting the awards; with budget cuts to OIA that will not be an option. Guru suggested that faculty senate members can communicate the desire to continue the recognition through faculty senate discussions.

Dave announced there will be a guest speaker at the March meeting; there are openings for the April and May meeting for guests, if anyone has suggestions. Dave will revisit the goals from August at the March meeting.

7. **Adjournment:** There being no further business, a motion to adjourn was made by Jan Helge; the meeting adjourned at 4:34 p.m.

The next meeting will be **March 21, 2024 from 3:30-4:30 p.m.; 120 Gateway/Zoom.**

Respectfully submitted,
Kimberly Rhodes, Recording Secretary

PROPOSED DATES FOR 2023-2024 (Meetings 3:30-4:30 p.m. unless indicated otherwise)
March 21, 2024
April 18, 2024
May 2, 2024



TEAM Malawi

Penelope A Muelenaer, MD, MPH, FAAP
Assistant Professor of Pediatrics



Andre A Muelenaer, Jr, MD,MS, FAAP, FCCP
Professor of Practice, Department of Biomedical Engineering and Mechanics
Professor of Pediatrics, Virginia Tech Carilion School of Medicine





TEAM Malawi

Mission: *TEAM Malawi* [*T*echnology-*E*ducation-*A*dvocacy-*M*edicine] is a transdisciplinary collaboration, based upon a community wellness model of health, designed to meet the challenges of resource-limited environments through community based participatory research/design/pedagogy.

Teaching and Learning in Malawi: Radford University and VT=> *Patti Talbot, Jennifer Jones-Powell, Patricia Kelly*

Sciencering in Malawi: VT and VTCSoM/Carilion Clinic=> *Penny & Andy Muelenaer, Ashley Taylor*

Mechanical Engineering Senior Design: VT and VTCSoM/Carilion Clinic=> *Kevin Kochersberger, Ashley Taylor, Andy Muelenaer, Lissette Bickford*

CitiHope International: medical and humanitarian relief for Queen Elizabeth Central, Zomba Central, and Ekwendeni Mission Hospitals=> *Penny & Andy Muelenaer*

Blacksburg & Covenant Presbyterian Churches: supporting mission hospitals in Mulanje, Embangweni, and Ekwendeni=> *Patti Talbot & Penny Muelenaer*

VT WASH course=> *Ralph Hall, and Penny Muelenaer*

Josiah Tlou=> Retired Professor who knows everyone!

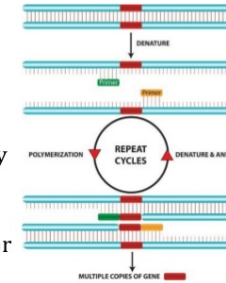


Vision: Utilize a community wellness model as the framework to integrate the activities of a disparate group of young investigators and mentors.



Laboratory Diagnosis of HIV infection

- PCR - In this the target HIV RNA or proviral DNA is amplified enzymatically *in vitro* by chemical reaction.
- It is an extremely sensitive assay because a single copy of proviral DNA can be amplified.
- Qualitative PCR is useful for diagnostic purposes.



04/19/14

Biochemistry for medics

68



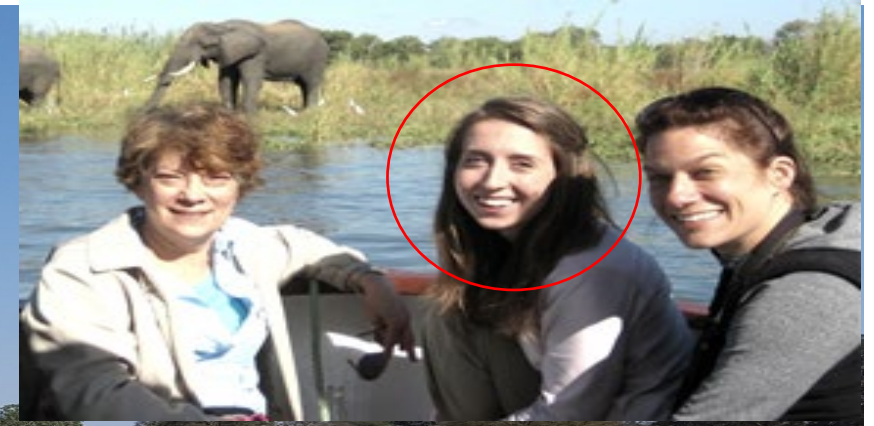
THE GOAL OF HIV TREATMENT IS TO FIND THE RIGHT MEDICATIONS AT THE RIGHT DOSAGE THAT WILL BE POWERFUL ENOUGH TO FIGHT HIV, BUT WON'T CAUSE TOO MANY SIDE EFFECTS

Goals: Student Engagement, and Global Research:

- Foster global perspectives of students.
- Stimulate ideas for improving conditions in a developing country.
- Create sustainable relationships that promote transdisciplinary models for development.
- Encourage evidence-based applied scholarly research.



Transdisciplinary Community Based Student Oriented



Working together. All moving in same direction.

Where have we been? 350+ Students Engaged & 64+ to Malawi

- 91 students on 15 Senior Design Teams: ME/BSE/ESM/BME
- 6 Advanced Degrees
 - MS-ME (2)
 - MPH (2)
 - MD
 - MS-EE
- Undergraduate Research 2023
 - 3 teams
 - 13 students
 - 6 Faculty
- BMES 4134 Biomedical Engineering Global Societal Ethics
 - Use Case: Research in Malawi
 - 246 Students
 - VT & MUST Faculty

- Experience WASH in Malawi 2016 & 2017
 - Multiple teams
 - 22 students



Risk of fish contamination from the boat to the market (Nkhata Bay to Mzuzu)

Mapping the water and sanitation services in a community



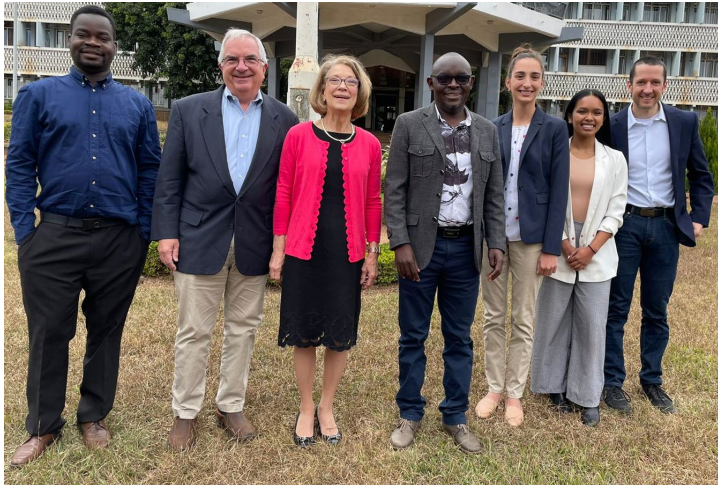
ST. JOHN'S HOSPITAL



STUDENT TRAVEL

- | | |
|------------|------------|
| ❖ 2013- 2 | ❖ 2017-11 |
| ❖ 2014- 3 | ❖ 2019- 9 |
| ❖ 2015- 3 | ❖ 2022- 2 |
| ❖ 2016- 11 | ❖ 2023- 23 |

Ministry of Health



PIVOTAL VISIT

JUNE 2022

- Identified cervical, breast, prostate and hepatocellular as common cancer diagnoses
- Challenge in the Continuum of Care: by the time patients get to Central Hospitals, cancer is often in very advanced stage.
- Need for screening and diagnosis at the community level

Central Hospitals



Winter Session
 27 Dec 2022 – 11 Jan 2023



- **18 Undergraduate Students**
 - 6 different majors
- **3 Graduate Students**
 - Public Health (2)
 - Biomedical Engineering
- **4 VT Faculty**
 - Andy Muelenaer, MD, MS
 - Professor of Practice-BME
 - Professor of Pediatrics- VTC SOM
 - Penny Muelenaer, MD, MPH
 - Assistant Professor of Pediatrics- VTC SOM
 - Chris Arena, PhD
 - Collegiate Associate Professor- BME
 - Glenda Scales. PhD
 - Associate Dean for Global Engagement and Chief Technology Officer- College of Engineering
- **Volunteer**
 - Debbie Arena, RN (retired)

- We traveled to two of the three main regions in Malawi, Africa, experiencing:
 - Healthcare facilities
 - Malawi University of Science and Technology (MUST)
 - Service learning
 - Introduction to community based participatory research & design
 - Beauty and Culture of Malawi
 - Transdisciplinary Research/Team Science



Key Accomplishments:

- Relationship Building
- Initiated community-based participatory research regarding the Continuum of Care, from Home to Hospital
- Identified opportunities for collaborative research and education





TEAM Malawi
*Technology-Education-
 Advocacy-Medicine
 Team Science
 Women's Health in a
 Rural African Setting
 Malawi, Africa*

Summer
 20-30 July 2023



• **3-Undergraduate Students**

- Industrial Design
- Public Health
- Neuroscience/Biology

• **2-Graduate Students**

- Biomedical Engineering
- Public Health

• **5-Faculty**

- Andy Muelenaer, MD, MS
 - Biomedical Engineering
 - Pediatrics
- Penny Muelenaer, MD, MPH
 - Pediatrics
- Eli Vlaisavljevich, PhD
 - Biomedical Engineering
- **Martha Sullivan,**
 - **Industrial Design, Chair**
- Adam Maxwell, PhD
 - Urology- University of Washington (Virginia Tech-Biomedical Engineering 2024)

Industrial Design

- Site Visit
- Needs Assessment



BINGU SCHOOL OF CULTURE AND HERITAGE
 through its seminar series presents a paper presentation

Paper title: Ceramics and Industrial Design

THURSDAY, 27TH JULY 2023
 3:00-4:00 PM
 LIBRARY AUDITORIUM

PRESENTER
PROFESSOR MARTHA SULLIVAN
 Virginia Tech

Public Health

- Community Based Participatory Research
- Cervical Cancer and Women's Health
- Relationship Building with Bingu School of Culture and Heritage
 - Dr Marion Chirwa Kajombo: language use in medicine especially women's health; Intercultural Communication; Interactional Sociolinguistics



Engineering Team

- FUS Education and implementation
- Research Site Evaluation





MOU VT-MUST executed in October 2023



Where are we now?

Strengthening Relationships



Jones Kaponde Masiye, MD, MPH
Deputy Director
Noncommunicable Disease
Ministry of Health (VT MPH)

Charles Mwansambo
Principal Secretary for
Health in Malawi
until May 2023

Address Mauakowa Malata, PhD, MSc, BSc, FAAN
Vice-Chancellor at the Malawi University of
Science and Technology

2 Graduate Students from MUST in SBES PhD Program

Focused Ultrasound



Virginia Tech Industrial Design

- **Committed to TEAM Malawi** as it supports:
 - Experiential learning
 - The principles of team science
 - The motto Ut Prosim
- **Strives to design products, systems, and services that ensure health and wellness for all communities**
- Promoting **relations with students and faculty from both universities**
- **Raising funds: VT students to travel to Malawi** to address:
 - Women's health
 - Water quality
 - Food insecurity
 - Design of the built environment as part of a study abroad immersion in Africa.
- **Working with the Bingu School of Culture and Heritage:**
 - **Opportunities** for their art and design students to **engage their communities** through design and increase their **professional success**
 - **Funds for faculty** from MUST to **travel to the USA** to expand their professional networks



Clemence (white shirt) won the multicultural fellowship for the National Council Education in the Ceramic Arts Conference, Richmond (March 2024)



The African Drone and Data Academy is building a future workforce of entrepreneurs and industry leaders



Based in Malawi since 2020, Virginia Tech is partnered with the Malawi University of Science and Technology (MUST)

- **60% female graduates** in accredited programs
- **VT – developed curriculum**, now providing quality control

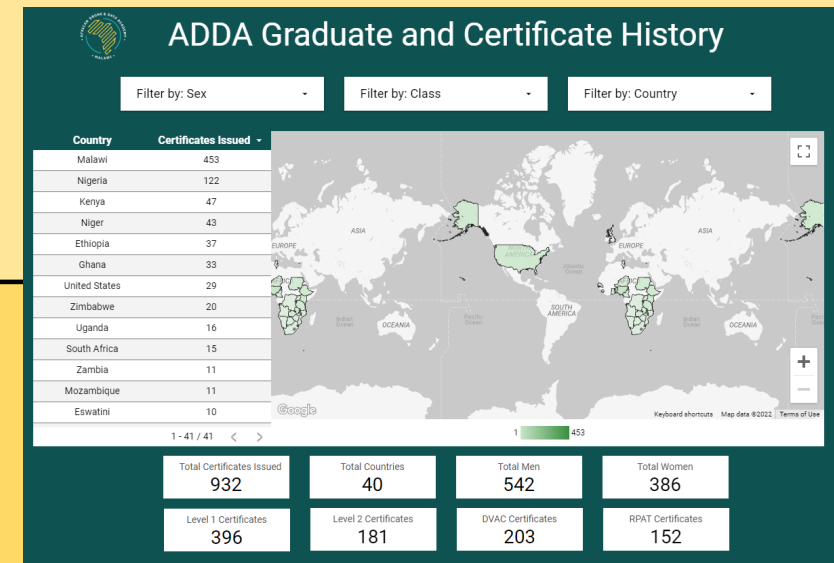
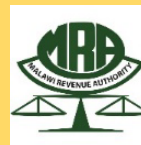


Accredited training curriculum created from the AUVSI Trusted Operator Program (TOP)

- **1280 total graduates**, including self-enrollment courses
- **39 countries represented**



Job placement for graduates has been a great success!

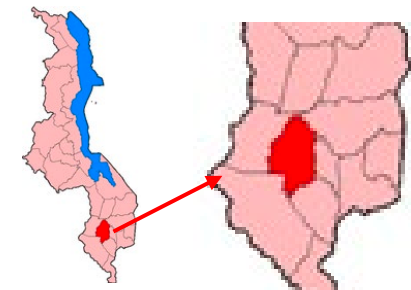
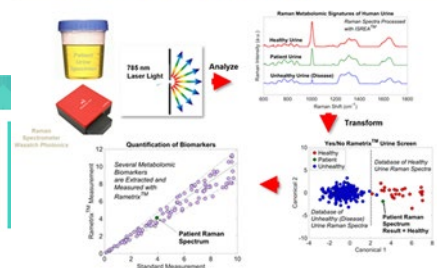


- Raman spectroscopy-based technology for screening and management of genitourinary tract cancer in Malawi [pending]

- Low-cost technology (Rametrix® Molecular Urinalysis [MU] System)
 - Raman spectroscopy-based urinalysis
 - Screening/detection of bladder cancer
 - Analytical studies in 600-900 individuals that will validate the use of Rametrix®

- \$2.7M NIH UO1

Raman Chemometric Urinalysis (Rametrix® Technology)



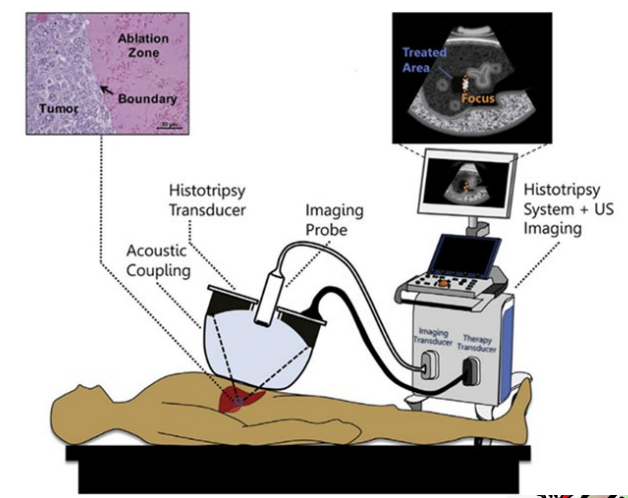
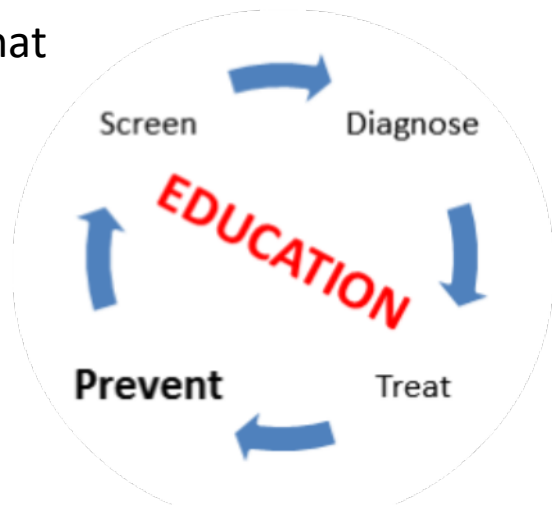
Thyolo District



Public Health Education- Access to Care

Mapping the Continuum: From Home to Hospital

- Pensievision- CervImage™ [funded]
 - \$2.2M Phase 2 SBIR Diagnosing Cervical Cancer
 - Handheld, Battery-powered, Digital imaging device, AI enhanced
 - 3D, interactable visualization of the cervix
- VTCSOM OB-GYN and VT BME to conduct clinical trials in Malawi



Focused Ultrasound/Histotripsy

Senior Design 2023-24

- **Surgery Scheduling and Notification System**
- Mercy James Centre for Paediatric Surgery and Intensive Care
- **Industrial and Systems Engineering (4 students)**
- Advised by hospital physicians and administrators
- Mentored by ISE, BEAM, and Pediatric faculty
- **Collaborating with 4 students from Malawi University of Science and Technology- Computer Science**
- Advised by Bennett Kankuzi, PhD, Department Head, Computer Science, & Mr Arthur Mwang'onda



- **Affordable Ultrasound Transducer Evaluation for LMICs**
- **Biomedical Engineering (4 students)**
- Adam Maxwell, PhD
- Andre Muelenaer, Jr, MD, MS



- **Surgical Sterilization for Clinics in Malawi**
- **Biomedical Engineering (4 students)**
- Ashley Taylor, PhD, MPH
- Penelope Muelenaer, MD, MPH



RESEARCH FOCUS FOR GLOBAL HEALTH

United Nations Sustainable Development Goals





TEAM Malawi

BMES/PHS 4994- Undergraduate Research: **Multidisciplinary Faculty Team**

TEAM Malawi-Team Science: Addressing the UN Sustainable Development Goals

Andre A. Muelenaer, Jr., M.D., M.S., FAAP, FCCP
 Professor of Practice, Department of Biomedical Engineering and Mechanics
 Professor of Pediatrics, Virginia Tech Carilion School of Medicine



Yuba Gautam, MS, PhD, MCHES®
 Collegiate Associate Professor
 Virginia Tech | Department of Population Health Sciences and Public Health Program
 Virginia- Maryland College of Veterinary Medicine



Martha Sullivan
 Associate Professor of Practice and Chair of Industrial Design
 School of Design
 College of Architecture, Arts, and Design



Ashley R. Taylor, Ph.D., MPH
 Collegiate Assistant Professor



Penelope A. Muelenaer, M.D., MPH, FAAP
 Assistant Professor of Pediatrics



John L. Robertson VMD PhD SM-NAI
 Research Professor
 Virginia Tech – Wake Forest School of Biomedical Engineering and Sciences and
 Department of Biomedical Engineering and Mechanics, VT
 Professor, Faculty of Translational Medicine, Biology, and Health, VT
 Affiliate Professor, Department of Mechanical Engineering, College of Engineering,
 Affiliate Professor, Department of Chemistry, College of Science, VT
 Adjunct Professor of Internal Medicine, Section of Nephrology,
 Wake Forest University School of Medicine
 Clinical Professor, Brain Tumor Center of Excellence and Clinical Research Group,
 Wake Forest Comprehensive Cancer Center,
 Winston-Salem, NC



Eli Vlasisavljevich, Ph.D.
 Associate Professor of Biomedical Engineering



Adam Maxwell, PhD
 Associate Professor of Biomedical Engineering



Christopher Pierce, MD, FAAP
 Interim Chair, Pediatrics
 Director, Pediatric Laboratories
 Associate Professor of Pediatrics



Sarah Hall, BS
 PhD Candidate & Teaching Assistant





***“Knowledge is like a Baobab tree, one person’s arms cannot encompass it.”
(African proverb- Ghana)***

MUST Graduation Ceremony- June 2022



Beauty and Culture of Malawi

