

THE COMMONWEALTH OF VIRGINIA ENGINEERING & SCIENCE POLICY FELLOWSHIP
A PROGRAM OF THE VIRGINIA ACADEMY OF SCIENCE, ENGINEERING, AND MEDICINE

Making Their Mark

on Public Policy!



DECEMBER 2021

Thank You

The Virginia Academy

would like to thank our committed

*sponsors — **George Mason University,***

Old Dominion University,

Virginia Commonwealth University,

Virginia Tech, the University of Virginia,

*and **William & Mary** — and our generous*

*funders — the **Chan Zuckerberg***

Initiative, The MITRE Corporation, and

***Huntington Ingalls** — for helping us*

provide a diverse and talented group

of science and engineering graduate

students with the opportunity to

serve in policy-making positions at

Virginia institutions.



VASEM

The Virginia Academy of Science, Engineering, and Medicine is a nonprofit organization consisting of members of the National Academies of Science, Engineering, and Medicine who reside or work in Virginia as well as Virginians who are leaders in these fields. Through its nonpartisan network of experts, the Virginia Academy provides rigorous analytical, technical, and scientific support to inform policy on issues critical to the Commonwealth.

The Virginia Academy also promotes research, fosters interchange among individuals and organizations, and recognizes and honors Virginians who have made major contributions to science, engineering, and medicine.

From the Program Coordinator

During our inaugural 2020 summer session, we connected a group of six Commonwealth of Virginia Engineering & Science (COVES) policy fellows with public, private, and nonprofit organizations across the state. Although these science and engineering graduate students all worked virtually, the program resonated with their host organizations, who praised our fellows for their initiative, hard work, and expertise.

For our 2021 session, we had a highly competitive group of applicants, and, thanks to the generosity of our funders, we were able to expand the program to 10 policy fellows. They joined us from George Mason University, Norfolk State University, Old Dominion University, Virginia Commonwealth University, Virginia Tech, the University of Virginia, and William & Mary.

COVES policy fellows were welcomed by host organizations ranging from legislative committees and the offices of senators and delegates to state agencies. We were gratified to see that the Office of the Secretary of Natural Resources agreed to host fellows for a second year.

Clearly, word had gotten out. Having bright young scientists on staff — if only for three months — allows agencies, committees, and groups with policy-making needs to take on projects they might not be able to pursue otherwise. At the same time, the diversity of the host institutions allows fellows the opportunity to use their scientific and technical skills to work on issues outside their field of study.

As program coordinator, it was my pleasure to work with host organizations and the fellows and to facilitate their growth. This report serves to introduce the COVES Policy Fellowship Program and to showcase the accomplishments of our 2021 fellows. We look forward to another successful program in 2022. We hope to recruit additional universities and host offices and once again field a diverse group of talented fellows.

Sincerely,



Sarah Hall
COVES Policy Fellowship Program Coordinator

vasem.org/covesfellowship



Having bright young scientists on staff—if only for three months—allows agencies, committees, and groups with policy-making needs to take on projects they might not be able to pursue otherwise.

COVES Policy Fellowship Program

The COVES Policy Fellowship aims to strengthen the scientific and technical capacity of state government, private industry, and nonprofit organizations in the Commonwealth of Virginia by encouraging and equipping young graduate students in science and engineering to be effective advisors for public policy.

Making a Vital Connection

The challenges leaders face today — in such areas as health, climate, and security — are unprecedented in their scope, complexity, and urgency. All too often, however, decision-makers lack access to the accurate and impartial scientific and technical information needed for them to act decisively and wisely. The obstacle: a critical shortage of scientists and engineers with the necessary training to be effective policy advisors.

The Virginia Academy of Science, Engineering, and Medicine created the Commonwealth of Virginia Engineering and Science (COVES) Policy Fellowship program to help bridge that gap. Although many young scientists and engineers are eager to take a more active role in policymaking, the opportunities to gain the skills and experience to make meaningful contributions are limited during their graduate and postgraduate careers. Thanks to the fellowship, they can now have that opportunity.

The COVES Policy Fellowship program enables young researchers to spend 12 weeks during the summer months serving as science and technology advisors in legislative offices and executive agencies as well as with prominent Virginia companies and nonprofits.

An Engaging Program

The fellowship program has been carefully designed to ensure that both fellows and host offices gain maximum benefit from the experience. It is modeled after successful programs developed by such organizations as the National Academies of Sciences, Engineering, and Medicine and the American Association for the Advancement of Science:

- **Fellows are current** graduate students from universities across the Commonwealth and are selected on the basis of their career interests, desire to learn, and scientific integrity.
- **They are matched** with offices involved in policy decisions based on mutual interests and the offices' need for assistance researching policy proposals, drafting policy documents, or organizing policy meetings and events.

“*Working with a COVES fellow was an opportunity to bring new thinking and a fresh perspective to the issues.*”

David Ihrle, Chief Technology Officer,
Virginia Innovation Partnership Corporation

“*Our COVES fellow exceeded expectations in terms of the quality and breadth of her work.*”

Colleen Grady, Legislative Assistant, Office of Virginia Delegate Rodney Willett

“*The research our COVES*

fellow produced for us was

extremely valuable.”

Mary McQuown, Peer Recovery Specialist
Liaison, Office of Recovery Services,
Department of Behavioral Health and
Developmental Services

- **The program begins** with a science policy bootcamp and orientation, which introduces fellows to the fundamentals of science policy and communication as well governance and policy-making in the Commonwealth of Virginia.
- **In addition to** their work in policy offices, COVES Fellows are paired with a mentor from the Virginia Academy and participate in academy briefings, committee meetings, and an annual summit.
- **Fellows receive a** summer stipend.

Participants

George Mason University, Old Dominion University, Virginia Commonwealth University, Virginia Tech, the University of Virginia, and William & Mary currently support fellows. In addition, the Chan Zuckerberg Initiative, The MITRE Corporation, and Huntington Ingalls have supported students from Virginia's historically black colleges and universities as well as other minority fellows.

Host offices have been so impressed by the caliber of our fellows that many have continued working with them after they completed the 12-week program, and several host offices have extended full-time offers. The fellows have published their work in collaboration with their host offices in blog posts, science policy publications, and in reports presented to government officials.

The COVES Policy Fellowship program has already improved the capacity of organizations throughout Virginia to make policy. Fellows have served at

- Department of Behavioral Health and Developmental Services
- Department of Conservation and Recreation
- Department of Forestry
- Department of Health
- Dominion Energy, Public Policy Department
- Joint Commission on Technology and Science
- Office of Virginia Delegate Rodney Willett
- Office of the Secretary of Natural Resources
- Office of Virginia Senator Ghazal Hashmi
- Office of Virginia Senator Jennifer McClellan
- Senate Finance and Appropriations Committee
- State Council of Higher Education for Virginia
- Virginia Biotechnology Association
- Virginia Innovation Partnership Corporation (formerly Center for Innovative Technology)



2021

COVES Policy Fellows

The 2021 cohort of COVES Policy Fellows is a diverse group of young scientists and engineers from a variety of fields, united by the desire to apply their expertise for the common good. Among their many contributions this year, they documented the need to support basic research at Virginia's public universities, explored zero-emissions power generation, and investigated the need to create a statewide privacy policy for smart communities.



Adele Balmer

"I have a better understanding of how important it is to take a holistic approach to policy; it is never as straightforward as it appears."

Host: Senate Finance and Appropriations Committee

Home Institution: Adele is a doctoral candidate in the Integrative Life Sciences program at Virginia Commonwealth University.

Summer Responsibilities: Adele used her statistical expertise gained as a graduate student to build a model showing how 30 different health factors affect Medicaid spending. Her findings will help the Senate Finance and Appropriations Committee focus on alleviating the health factors that could yield potential cost savings.



Janey Dike

"It was so exciting to be involved in research-based discussions about the struggles and successes of large-scale interventions for those most in need of services."

Host: Division of the Chief Clinical Officer, Department of Behavioral Health and Developmental Services

Home Institution: Janey is a doctoral candidate in clinical psychology at Virginia Tech.

Summer Responsibilities: Janey compiled information related to racial equity and mental health and created a presentation for a Racial Equity Workgroup highlighting barriers to mental health care and disproportionate racial-ethnic group representation in diagnosis and treatment. She also aided in outlining training needs across departments.



Isis Garcia-Rodriguez

“As a COVES Policy Fellow, I was given the opportunity to apply the knowledge I have learned so far in my academic career in new and exciting ways in the policy sphere.”

Host: Office of Recovery Services, Department of Behavioral Health and Developmental Services

Home Institution: Isis is a doctoral candidate in counseling psychology at Virginia Commonwealth University.

Summer Responsibilities: Isis provided a framework for a state-wide, regional needs assessment for recovery services and helped launch an initiative to provide support groups for the recovery providers facing burnout as a result of the pandemic.



Chelsea Gray

“As a result of the fellowship, I’ve formed long-term relationships with individuals in state government. Together, we plan to continue our work on legislation in the upcoming legislative session.”

Host: Office of Virginia Delegate Rodney Willett

Home Institution: Chelsea is a doctoral candidate in environmental science and public policy at George Mason University.

Summer Responsibilities: Chelsea researched a variety of topics from a science and state policy perspective. They included environmental protections, campus sexual assault, public comment periods, and mental health policy. She also gained experience in taking policy from initial idea to draft legislation.



Tara Illgner

“I’ve made great connections and gained new insights into the legal and policy structures behind science and technology in Virginia.”

Host: Joint Commission on Technology and Science (JCOTS)

Home Institution: Tara is a master’s student in environmental sciences at the University of Virginia.

Summer Responsibilities: Tara assisted JCOTS in managing three issues that came before it this summer: the Virginia Consumer Data Privacy Act, the Child Protection Online Bill, and the Virginia Academy Coastal Flooding Report. In the last month of the fellowship, she encouraged JCOTS to explore zero-emissions power generation through carbon-capture and storage technology.



Nikita Lad

“My interactions with stakeholders gave me an insight into the formulation of legislation and expanded my perspective beyond that of a traditional scientist to view issues from a policymaker’s perspective”

Host: State Council of Higher Education for Virginia

Home Institution: Nikita is a doctoral candidate in environmental science and policy at George Mason University.

Summer Responsibilities: Nikita investigated the need to support basic research at Virginia’s public universities. Her report entailed examining existing laws, policies, and practices and conducting interviews with government leaders, universities’ chief research officers, private sector CEOs, and association leaders. She contextualized and communicated scientific information to Virginia’s policymakers.



Sunil Manandhar

“The COVES fellowship taught me a great deal about how policies are made, challenges surrounding the policy-making process, and the importance of discussions that help guide it.”

Host: Virginia Innovation Partnership Corporation (VIPA)

Home Institution: Sunil is a doctoral candidate at William & Mary.

Summer Responsibilities: As part of VIPA’s Smart Communities Initiative, Sunil met with representatives of companies supplying services to smart communities. He also researched the perspectives of partner companies, state/county officials, and the public, providing a basis for formulating statewide privacy policy applicable to such situations as deploying machine learning in public spaces.



Margaret Nagai-Singer

“Working with a state agency underlined the importance of gathering diverse stakeholders and of anticipating unintended policy consequences.”

Host: Virginia Department of Forestry

Home Institution: Margaret is a doctoral candidate in biomedical and veterinary sciences at Virginia Tech.

Summer Responsibilities: Margaret created a report showing that responsibly managed forests are paramount to protecting Virginia’s water from climate change, urbanization, and development. The report included multiple actions Virginia can take to use forests as green infrastructure to protect water resources. These range from changes to the Code of Virginia that facilitate innovative markets to outlining public outreach campaigns.



Homa Jalaeian Taghadomi

“This opportunity helped me to better understand resiliency in Virginia and, more broadly, afforded me new connections and opportunities.”

Host: Office of the Secretary of Natural Resources

Home Institution: Homa earned her PhD in civil and environmental engineering from Old Dominion University in 2021.

Summer Responsibilities: As a member of the Coastal Resilience Master Plan team, Homa compared the plan’s prioritization approach with the Community Flood Preparedness Fund grant manual. She analyzed the different ways projects are grouped and the factors used to screen and evaluate them. She also assessed the flood exposure of state-owned buildings.



Kelsea Yarbrough

“I realized that so much legislation at a state or local level is enacted because citizens brought their concerns to their elected officials.”

Host: Office of Virginia Senator Jennifer McClellan

Home Institution: Kelsea is a doctoral candidate in materials science and engineering at Norfolk State University.

Summer Responsibilities: Kelsea helped Senator McClellan’s constituents secure unemployment benefits from the Virginia Employment Commission, which was facing a record caseload due to the pandemic. In addition to working with other state agencies to address constituent issues, Kelsea conducted basic policy research for future legislation.



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