

YEAR OF AWARD: 2016

Pamela Norris

Frederick Tracy Morse Professor
Emerita of Mechanical
and Aerospace Engineering

former Executive Dean
of the School of Engineering
and Applied Science

Currently, Vice Provost for
Research, George Washington
University

Years of service at UVA:
1994-2021



A first-generation college graduate from Virginia who has made a name for herself in a male-dominated field, **Pamela Norris** had a significant impact on the University of Virginia. After her arrival in 1994, she founded two research laboratories, secured several patents, and drew more than \$25 million in

research grants for the School of Engineering and Applied Science.

Norris was the second woman to join the faculty of the Mechanical and Aerospace Engineering Department and the first to hold an endowed chair. A powerful researcher, she was the top-funded female researcher at UVA for a number of years. In 2021, she was named Vice Provost for Research at George Washington University.

She is recognized globally as a leading expert in nanoscale energy transfer and aerogel research. She routinely chairs and speaks at international conferences on these subjects and has published over 100 heavily-cited refereed journal papers. She

holds patents for applications of aerogels in areas ranging from biological warfare detection, to lab-on-a-chip, to thermal insulation, along with patents for innovative thermal management techniques for jet-blast deflectors. She was elected an Honorary Member of the American Society of Mechanical Engineering in 2021 for “international leadership in nano, micro and macroscale thermal science and engineering research; for tireless efforts to advance diversity in STEM fields; and for demonstrating engineering excellence as an outstanding mentor for students and faculty.”

A U.S. Department of Defense Multidisciplinary University Research Initiative (MURI) project

was one of many research projects in which Norris leveraged the power of a multidisciplinary approach to make significant engineering advancements. Her leadership in this area helped build UVA Engineering's rich and diverse cross-disciplinary research culture that not only solves tough problems, but attracts many faculty members and students to the University.

Norris also became known at UVA for her mentoring skills and for her dedication to increasing the representation and retention of women faculty in the STEM disciplines, culminating in her work on the ADVANCE grant. In 2016, she was honored with the Society of Women Engineers Distinguished Engineering Educator Award.

WHY DID YOU COME TO UVA?

I came to UVA straight out of my postdoc in 1994. I always knew I wanted to be a professor, but I didn't know at what type of institution. Ultimately, after my postdoc, I was aiming for a research-intensive institution. I was applying at positions in California and Illinois and other places, but I ended up with offers from the University of Maryland, the University of Virginia, and Clemson, all ACC schools on the East Coast and near my hometown of Portsmouth, Virginia. And UVA was definitely the one that appealed to me the most.

UVA really made me feel like they wanted me. I was the second woman to join the mechanical and aerospace engineering department at UVA. When I joined the department, they made me feel welcomed. There were a lot of people who offered equipment, supplies, and things to help me get started as an experimentalist. So, I really felt embraced by the department.

HOW HAS UVA CHANGED IN THE YEARS SINCE YOU BEGAN WORKING HERE?

I think there were probably 30 other members of the department, all male but one. They didn't quite know what to do with me, how to interact, or how to kind of bring me into the fold. I had to do a lot of purposeful things to fit in. I bought tickets to football and basketball games and sat with other faculty, because I felt like I needed to give them a topic to talk to me about. I love basketball and football, so that wasn't a hardship, mind you, but it was a purposeful decision to do that so that they could just embrace me.

I'm the first woman to rise through the ranks within the mechanical and aerospace engineering department from assistant to associate to full professor and ultimately to an endowed chair. My children were both born when I was still an associate professor. I felt a great need to make sure I took the full parental leave available to set an example for other women in the department as they came forward. Yes, you step away, you just do your research for a semester. You are fully disengaged from the department as far as service and education. And I really felt the responsibility of setting that example.

I'm happy to say that there have been several women after me in the department, and, actually, we have a pretty good record now compared to most mechanical engineering departments. I think it was really important for

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In Her Words | Pamela Norris

those women and their colleagues to see what I did so they could fully embrace parental leave if they decided to have children.

A lot of senior women used to advise women to not have kids early and to make sure you were promoted first because it could hurt your career. Which is true, if you're not in a supportive environment. Women came in and did have children – at least one as an assistant professor. I do think I helped change the culture in the department, and I'm proud of that.

HOW DO YOU THINK DIFFERENT ASPECTS OF YOUR IDENTITY, INCLUDING BEING A WOMAN, IMPACTED HOW PEOPLE RESPONDED TO YOU IN YOUR POSITION?

I think I was the top-funded female researcher at the University for a number of years – the whole University, not just my department. I was a powerful researcher. And I think that seeing a woman, a first-generation college graduate from Virginia, really excelling did have an impact on the institution as a whole. It helped change some stereotypes of women as researchers.

Being in a position of a little bit of power, I was able to influence some things that really did help change the tone in the school and positively impact the culture within the school.

When I was the graduate director in my department, before I moved to the dean's office, we had a departmental conference room where all of our PhD students did their qualifying exams. It's where the faculty would decide if the students got to stay or were dismissed from the program. It's also the same room where we would vote on all promotions and hiring decisions for all faculty. And this room was lined with pictures of former faculty, all old, mostly white, men.

I had to try to articulate the issue: How are you supposed to feel embraced and part of the community when this is what's looking at you? I mean, all the people sitting in the chairs in front of you for the most part are old white men, but then you've got all these old white men on the wall really magnifying that impact.

My colleagues really didn't fully understand this initially. Finally, when I got in a position of a little bit of power with a department chairman who understood, my administrative assistant went and took 'em down and hid 'em. Nobody knows where they are to this day.

WHAT ADVICE WOULD YOU GIVE TO A WOMAN IN A SIMILAR POSITION TODAY?

I still think what I did early – finding ways to be approachable, recognizing that there may be people, especially in the sciences where you're still such a minority, who have difficulty connecting. And try to find ways to connect – basketball and football for me, you know?

Don't delay having a family if you want one – do it at the time that is right for you. And if your institution doesn't support that, then you're at the wrong institution. I've mentored many women within the engineering school who are really worried about getting tenure. And my advice to them has always been to do what it is that you're motivated to do, the work that's important to you, what makes you happy. And if that matches the expectations of your institution, great. You're at the right place. And if it doesn't, you're going to be miserable anyway, so go someplace else where your expectations are matched. Be authentic, be yourself.

HOW WOULD YOU LIKE TO BE REMEMBERED? WHAT LEGACY ARE YOU LEAVING THAT YOU ARE MOST PROUD OF?

There's a National Science Foundation program called ADVANCE, and it's meant to advance the careers of female science and engineering faculty and to enhance the climate for female scientists. The awards vary in size and scope. The most prestigious and the highest funded one is called an institutional transformation award, typically on the order of \$3 million, and it's given to an institution for a proposal to change the institution in the long term to increase the number of female faculty in the STEM disciplines.

As an associate professor pretty early on, I decided we really needed an institutional transformation NSF award at UVA. They only have a solicitation about every three years. I led the first submission that came from UVA, and it wasn't funded. For the second attempt, I teamed with the Vice Provost for Academic Affairs, Gertrude Fraser, and we were not successful. The input from the reviewers was that they were not convinced UVA was ready to transform.

And then the third submission, for which Gertrude Fraser served as the lead and I worked very closely with her, was after President Sullivan began her tenure. She had been involved in an ADVANCE grant at the University of Michigan. We were able to articulate that UVA was ready to change the environment, and we were awarded a \$3.25 million grant to support activities focused on increasing the representation of women STEM faculty.

This grant led to establishment of the Dual Career Program, which was established to support the spouses and partners of new UVA faculty. Another project resulting from this grant was the UVA Acts theater group, which we showed is a very effective method for educating our faculty about the impact of implicit bias on things such as hiring and promotion decisions. We also used theater as a means of training our department chairs and our search committees.

And to help enhance visibility of the female STEM pioneers at UVA we created a really great exhibit – Voices and Visibility – which included huge cloth murals of women that were set up in the lobby of the Brown Science and Engineering Library or in the Chemistry Building atrium for a month. For an entire month, all those entering Brown Library had to walk through the mural room, with all those Greek Revival paintings above, and through this huge exhibit that told the history of women in the STEM disciplines who were pioneers at UVA. The exhibit highlighted their experiences, and it was a pretty powerful exhibit.

I hope my leadership in ADVANCE will be remembered. Our ADVANCE grant ended a couple years ago, and it lasted seven years. That seven-year period really helped transform the culture of inclusivity for women at UVA.



Leadership is listening to the community and then envisioning a better future that aligns with the desires, aspirations, and needs of the community. A leader is a person who is able to clearly articulate a compelling path to that future state and helps everyone see the role that they play.

