

A race against time: Grad innovates research on aging

By Megan Neely, ASU News
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Editor's note: This story is part of a series of profiles of notable [spring 2025 graduates](#).

Time is invaluable, and for Brianah McCoy, so was finding the right university.

Her mission to find a school that aligned with her needs landed her at [The College of Liberal Arts and Sciences](#) at Arizona State University. Eight years later, she's graduating as a three-time Sun Devil with her PhD in molecular and cellular biology.

McCoy started her academic journey in 2017 in Boston, Massachusetts. She wanted a program that offered geographical flexibility, and that's when she found the bachelor's degree in biological sciences on [ASU Online](#).

She completed her undergraduate program in 2020 through the [Starbucks College Achievement Plan](#) and has since obtained her master's degree in molecular and cellular biology in 2023 while in her PhD program.

"I am a first-generation student, and my parents couldn't afford to help me through college. I was really resistant to student loans. (The Starbucks College Achievement Plan) allowed me to graduate and pursue higher education without the stress of not being able to afford school," said McCoy.

Her interest in biological sciences originally came from a microbiology course she took in community college where she encountered her first female professor of a STEM-related subject.

"Her encouragement and the way she made science feel approachable and fun helped me envision a future for myself in the field. That experience sparked something in me, and I knew I wanted to keep exploring biology at a deeper level."

Early in her undergraduate program, McCoy began taking an organic chemistry course taught by [Ara Austin](#). McCoy and her classmates looked for a way to stay connected and foster a community in an online space. Conducting research and connecting with students had been hard to accomplish in a remote setting, so they sought to make it easier for students to not only form relationships with each other and faculty, but also gain access to more flexible research opportunities.

“Ara taught me the value of community and advocacy in STEM. She created a sense of belonging for online students who often felt isolated and was instrumental in supporting my journey to graduate school. Her belief in my potential showed me just how powerful mentorship can be,” said McCoy.

The idea of connection eventually turned into what is now the [Online Undergraduate Research Scholars \(OURS\) program](#), an opportunity for online students to participate in research in the natural sciences, social sciences and humanities. Since its inception in 2022, the program has served 674 online students and has held 37 group-based research experiences with topics ranging from preserving cultural heritage through linguistic accessibility to investigating stardust in extraterrestrial samples.

While the OURS program was taking shape, McCoy was able to work on research through the [National Institute on Aging \(NIA\)](#) at Harvard Medical School, eventually earning credit toward her degree.

“Bri was a strong advocate for creating such a program after she completed her undergraduate research experience at Harvard, and she believed that such opportunities should exist for online students at ASU,” said Austin, now the assistant dean of instructional innovation for The College.

“She made it very clear from the beginning that she was interested in pursuing a research career, and it is exciting to see her passion and diligence paying off. I am honored to have been a part of her journey here at ASU, and her story is a testament to what educational access can do for an individual.”

The flexibility and accommodation to her remote research opportunities during her undergraduate experience is what attracted McCoy to return to ASU, this time in person, to pursue her PhD.

“When it came time to pursue my PhD, I knew ASU had the infrastructure, mentorship and inclusive environment that would allow me to successfully transition to an on-campus program and thrive both personally and academically,” she said.

Her interest in aging led McCoy to join the [SMack Lab](#) in 2021, run by Associate Professor [Noah Snyder-Mackler](#) in the [School of Life Sciences](#) and [Center for Evolution and Medicine](#).

The lab studies how social experiences alter our genes, using molecular genetic tools to understand how the environment affects health, reproduction and survival.

McCoy took particular interest in the [Dog Aging Project](#), where the focus is to understand how genetic and environmental factors shape aging in companion dogs.

“Companion dogs share a lot of the same environmental factors that we do, and they also get the same age-related diseases, but you’re not studying something like a human, which could live for 100 years, right?” she said. “Dogs age around seven times faster than humans, so it’s more of a naturalistic model for understanding some of these factors that we might be interested in when it relates to humans, but through a model that is a little bit nicer to study and shorter-lived than humans.”

Snyder-Mackler said: “Bri brought incredible drive and ingenuity to one of the most ambitious projects I’ve encountered — integrating large-scale behavioral and survey data from companion

dogs with genome-wide molecular data to uncover how and why we age differently. What she accomplished during her PhD was truly exceptional and speaks volumes about her ability to tackle the tough and important interdisciplinary questions."

Her published research from the lab includes deep dives into [social environmental adversity](#) and its effects on the aging process in companion dogs, the [biological mechanisms](#) that underlie breed differences in aging, and [patterns of aging differences](#).

"We can uncover new principles that apply to humans as well, because a lot of the genes that are in dogs are the same genes that are in humans — known as evolutionary conservation," McCoy explained. "By knowing this information and uncovering some of these principles that also apply to humans, we can design better interventions."

McCoy will be continuing her academic research at the [Carolina Population Center](#) at the University of North Carolina at Chapel Hill. There, she'll focus on integrating methods from genomics, population health, geroscience and epidemiology to better understand the life-course determinants of aging in women.

"A lot of what we know about women's reproductive aging is what happens post menopause. We always study women who have already hit menopause, but I'm looking at the adolescent health population and what is actually happening in the middle of their life," said McCoy.

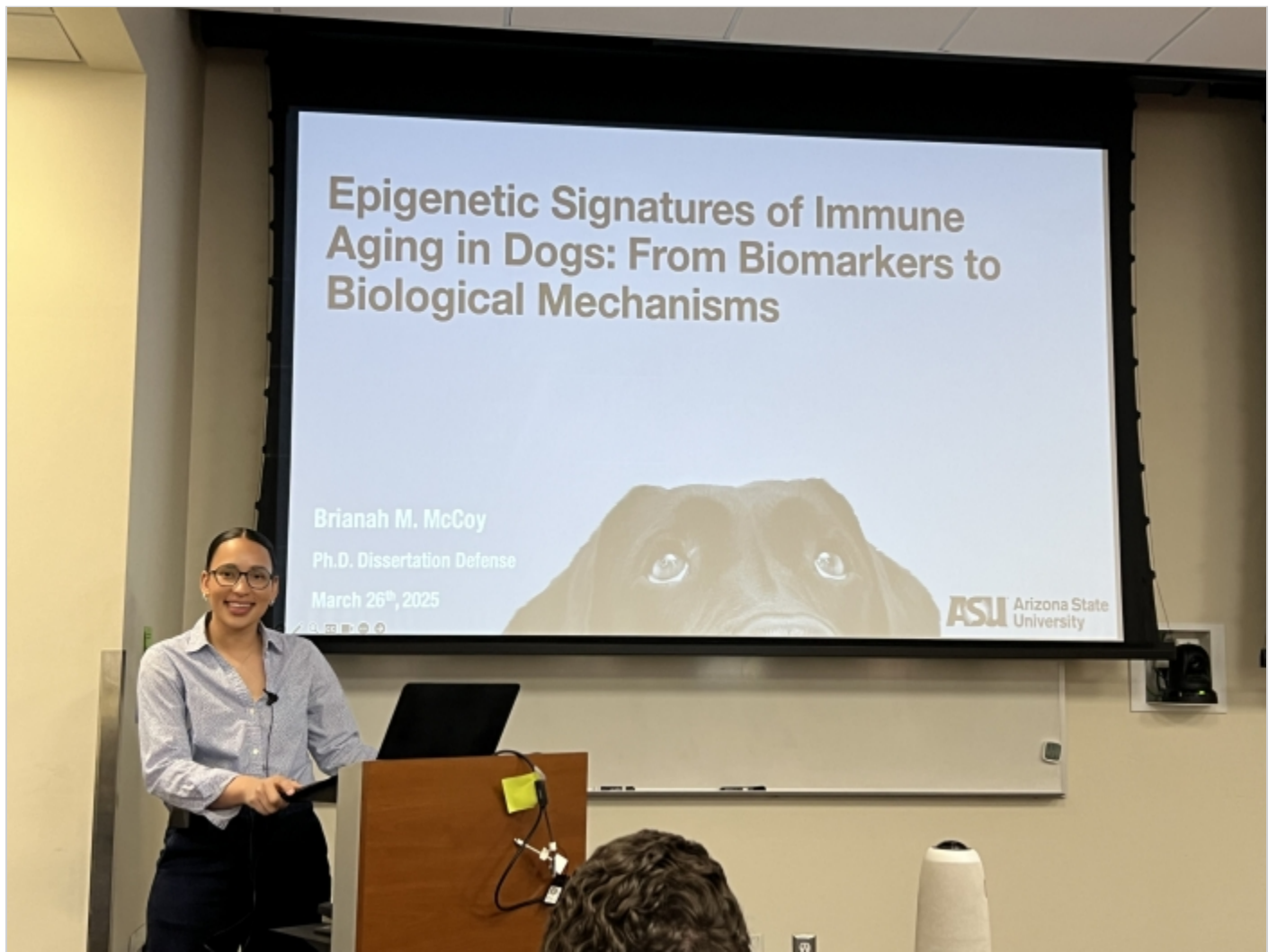
"So when an individual experiences their first period all the way until the onset of menopause, what's happening in this black box of time, and how does that raise or decrease their risk of a chronic disease downstream?"

This story originally appeared on [ASU News](#).

Text image(s)



Brianah McCoy



Brianah McCoy's PhD dissertation defense from this semester. Courtesy photo