

ASU grad Elsie Davis says 'growth comes from persistence and belief'

Her passion for math led to a dual major, research opportunities and a chance to help struggling students

By Cynde Cerf, ASU News
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Editor's note: This story is part of a series of profiles of notable [spring 2026 graduates](#).

Elsie Davis from Queen Creek, Arizona, has loved math since middle school.

"I was fortunate enough to have the same mathematics teacher from 7th grade through 12th," she says. "Mr. Hermann taught us how to think critically and approach challenging problems with the right framework and mindset."

So when it was time for Davis to choose a college major, she chose two: [applied mathematics](#) and [applied physics](#).

"What began as an enjoyment of mathematics evolved into a desire to understand how these abstract structures describe the physical world," says Davis. She's graduating with bachelor's degrees in applied mathematics and applied physics, with a minor in astrophysics.

Davis' love of math also brought an unexpected benefit — for her and others.

"One of the biggest lessons I've learned at ASU that surprised me and changed my perspective came from working as a subject area tutor for the [Academic Support Network](#)," Davis says. "I saw firsthand that students are often capable of far more than they believe."

"I have worked with many students who initially felt overwhelmed by their courses, but through persistence and repeated practice, they developed confidence and mastery of the material. Seeing that showed me that growth often comes from persistence and belief in one's ability to improve. That lesson shaped how I approach challenges in my own studies as well."

(Video: <https://www.youtube.com/watch?v=iG34Jv1Yngc>)

Tutoring was not Davis' only job while earning her degree. As research assistant to Professor [Michelle Zandieh](#) in the [School of Applied Sciences and Arts](#), part of the [College of Integrative Sciences and Arts](#), her job was education related and one of Davis' most impactful research experiences at ASU.

"Our work focuses on how students reason and how digital learning environments can support that understanding," she says. "I helped analyze student reasoning and contributed to the development and refinement of educational materials and research publications, including work presented at the [Conference on Research in Undergraduate Mathematics Education](#). Working on this research allowed me to view mathematics as not only a tool to describe the physical world around us, but also as a subject that is shaped by how students learn and communicate their ideas."

Her roles as student, tutor and researcher reinforced one of Davis' primary reasons for choosing ASU: the many available opportunities.

"Since ASU is so large, there are so many different areas to explore, so many people to collaborate with, and so many resources available for students who want to learn and grow," she says. "I've really appreciated that environment because it allowed me to pursue my interests deeply while also exposing me to new ideas."

Those opportunities included two [National Science Foundation Research Experiences for Undergraduates](#).

"I spent this past summer at [Howard University](#) working on a physics research project focused on the topological properties of quantum systems," she says. "And as an incoming freshman, I participated in an applied mathematics research experience modeling airflow and turbulence using reduced-order modeling techniques. These experiences allowed me to apply mathematical and computational methods to complex physical systems, and helped confirm my desire to pursue graduate study in theoretical and computational physics."

Davis said balancing her job and her studies required strong time management and discipline: "When I was at work, I focused fully on the students I was tutoring or the research I was contributing to. When I was at home, I focused completely on my coursework and staying ahead of deadlines. Even when things were difficult or I felt tired," she says, "I reminded myself that these experiences and this hard work were helping me build the future I wanted."

Lending to her ability to balance work and study, and another reason she chose ASU, was the university's Polytechnic campus and its proximity to her home in Queen Creek, Arizona: "Being able to stay close to my family while attending a university, having that support system while pursuing a rigorous program, was very important to me."

With all the knowledge and experience she's gained at ASU, Davis says the most important lesson she's learned came from Professor [Igor Shovkovy](#) in the School of Applied Sciences and Arts.

"(Professor Shovkovy's) Mathematical Methods in Physics I course was intimidating at first," she recalls, "but what he constantly emphasized was, 'Always ask questions!' I used to worry about asking something that would make me sound stupid, but he would remind us that the real mistake is staying confused because we were too afraid to ask. He said, 'If you're not asking questions,

you're not really learning.”

Davis says she began applying that maxim to everything she did and every class she's taken — a habit that will no doubt continue to serve her as a physics PhD student and in a research career in theoretical and computational physics.

“I still sometimes get nervous to ask questions,” Davis says, “but I know that they are absolutely necessary if I want to fully understand.”

Davis is being recognized as a distinguished graduate from the College of Integrative Sciences and Arts as a Dean's Medalist representing the School of Applied Sciences and Arts.

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

Main image



ASU spring 2026 graduate Elsie Davis is being recognized as a Dean's Medalist at ASU's School of Applied Sciences and Arts in the College of Integrative Sciences and Arts. She is a double major in applied mathematics and applied physics, with a minor in astrophysics. Photo by Anthony Trujillo/ASU