

UW-Eau Claire: High school outreach program aims to bring more diversity into the geosciences

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An innovative University of Wisconsin-Eau Claire outreach program is introducing high school students from underrepresented populations to careers in the geosciences, a career path vital to solving a plethora of societal issues, including climate change and water scarcity.

“The demand for geoscientists is growing, but a majority of the people working in the field still are white males,” says [Dr. J. Brian Mahoney](#), professor of geology at UW-Eau Claire. “The lack of diversity means we are missing the talent and perspectives of large numbers of people who could help us find solutions to our many environmental problems.”

Geoscientists study and work with all things relating to the physical Earth, including the atmosphere, water, minerals, energy resources, weather, soil, natural hazards and more, and how they interact with and influence human societies.

Since geoscience impacts everyone regardless of gender or race, a diverse and inclusive workforce is necessary if geoscientists are going to engage in research and solve problems in ways that benefit all members of society, Mahoney says.

After receiving a \$300,000 grant from the National Science Foundation, UW-Eau Claire’s [geology department](#) created GeoPaths, an initiative designed to “strategically and purposely” recruit more young people from minority ethnic groups, women and first-generation college students into the geosciences, says Mahoney, the principal investigator on the project.

“Exposing high school students, specifically underrepresented students, to careers in science at a young age has profound impacts on how they see themselves in the future,” says Alicia Howe, a biology and environmental science teacher at Memorial High School in Eau Claire. “This program is a life-changing experience for these students.”

The UW-Eau Claire program — which launched in summer 2022 — offers select high school students from underrepresented populations in western Wisconsin and eastern Minnesota the opportunity to learn about geosciences during a weeklong summer program at UW-Eau Claire.

Throughout the week, the teens engage in real-world activities designed to help them better understand geoscience and to inspire them to consider the field as a future career, Mahoney says.

Students who later enroll at UW-Eau Claire to study geoscience will continue in the GeoPaths program throughout their college careers. They will join a dedicated research team composed of undergraduate students and faculty working on specific geoscience issues for a week prior to the start of their freshman year, which will allow them to enter the university as part of a research cohort deeply involved in the department. As Blugolds, they will join an existing student-faculty research team and receive mentoring and other support to help them excel during and after college.

While there is a growing demand for people to work in all aspects of geosciences, it’s a field that few high school students know much about, so it’s not on their radar when they’re thinking about college, Mahoney says. Hopefully, he says, GeoPaths will make high school students more aware of all that the field can offer, so they come to college already considering it as a future career.

“We need lots of people to be working on things like renewable energy, clean and sustainable water supplies and minimizing damage from natural hazards like floods and wildfires,” Mahoney says. “We need a lot more people, and we especially need a much greater balance of gender and ethnicities. We want more young people from underrepresented groups to learn about the geosciences and to see the breadth of opportunities it offers.”

Howe, a UW-Eau Claire graduate who helped recruit high school students into GeoPaths and was a mentor during the summer program, says UW-Eau Claire’s

geology department “consistently puts together thoughtful programs to engage high school students in the work of science.”

“However, this program goes a step further in showing students from underrepresented groups what a college experience looks like,” Howe says. “The students explore a variety of careers in environmental science, engage with geology students and professors, and experience dorm life on campus.”

More about GeoPaths

Mahoney says GeoPaths is unusual because it offers students a multiphase education pathway that begins after their junior year of high school and continues until their college graduation.

Each year, up to 18 select high school students who have an interest in and aptitude for the science, technology, engineering and mathematics (STEM) fields can enroll in the weeklong Summer Institute in Applied Geoscience at UW-Eau Claire, the first step in the multiyear program.

The experiential, field-based summer program includes activities such as geologic field trips, laboratory analyses, hydrogeologic monitoring and other real-world geoscience-focused activities. These activities are led by university faculty, high school teacher mentors and undergraduate teaching assistants.

The goal is that these activities will inspire the teens to pursue formal geoscience training and to think about a range of geoscience career opportunities, Mahoney says. Hopefully, each year at least some of the students from the summer program will choose to study geoscience at UW-Eau Claire, he says.

Students who do enroll at UW-Eau Claire will move to the next phase of the GeoPaths program, which includes a weeklong Foundational Research Experience. Prior to the start of their first college semester, students will join a faculty-student research team that focuses on “socially relevant environmental issues,” such as the environmental impact of sand mining or private well contamination issues, Mahoney says.

“It will introduce students to teamwork, scientific problem solving, the design and execution of a research program, the use of analytical instrumentation and student-faculty collaborative research,” Mahoney says. “Most importantly, they will join the

university as a member of an active research team.”

UW-Eau Claire students in the GeoPaths program also will receive mentoring from faculty and upper-level students throughout their time on campus, progress through their degree program as part of a cohort, experience high-impact educational opportunities, and compete for paid internships in industry and government agencies.

In its inaugural year, six high school students participated in the summer program, a number that Mahoney hopes grows as more students and high school science teachers learn about the program.

Howe says the students from Memorial High School who participated in the summer program gained skills, knowledge and confidence as they learned from each other and professionals in various science fields. What they learned will be valuable throughout their lives, she says.

The students are “demonstrating greater levels of confidence and have a clearer picture of what postsecondary life and education will look like,” Howe says. They are eager to explore careers in science and are more confident about achieving their goals after high school, she says.

“Each step of GeoPaths is intended to help students succeed in college and become successful geoscientists,” Mahoney says. “We’re excited to offer students a path that will lead them to interesting and well-paying jobs in the future. We also are happy that our innovative program will help bring greater and much-needed diversity to the geoscience workforce.”

For more information about the GeoPaths program, contact Mahoney at 715-836-4952 or mahonej@uwec.edu.