

[Efforts made to steer women, minorities to science careers](#)

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Stargazing is a “commonality across the human experience,” former NASA astronaut Mae Carol Jemison said to a room of skeptical Duke University science, technology, engineering and mathematics majors. The world’s first woman of color to complete a space flight was science mission specialist on the Endeavour crew.

Jemison was in Durham Oct. 25-26 for the Race in Space conference hosted by Duke’s Department of African and African American Studies.

“How many of you have ever thought of space exploration or being involved with space?” she asked.

Incredibly, only one student affirmed that she had had a personal experience with stars or the night sky as a child: Jemison had been the subject of her third-grade science project.

One attendee, Liza Sukra, of Guianese descent, said she first learned about Jemison from her Girl Scout troop leader: “I came here to meet a living legend.” When Jemison told the group that the European Space Agency launched from French Guiana, the listeners were astonished.

A medical doctor who trained in chemical engineering and African and Afro-American studies at Stanford University, when few women and blacks were STEM majors, Jemison, now 57, was inspired by a fictional character, Lt. Nyota Uhura of “Star Trek,” played by Nichelle Nichols.

“We have so many assumptions that keep us out of fields of inquiry,” Jemison said, “but space exploration is transdisciplinary.” Her presentation chronicled the “Unlikely Story of NASA and the Civil Rights Movement,” two undertakings that took off starting in the late 1950s. President Lyndon Johnson saw NASA – headquartered in the heart of the old Confederacy (Alabama, Florida and Texas) – and the space program, which was governed by the Equal Opportunity mandate, as vehicles to transform the South.

Duke’s William Darity Jr., Arts & Sciences professor of public policy and professor of African and African-American studies and economics, said the goal of the Race in Space conference was “to explore the ways that race, culture and nationality might play out in the colonization of space stations, planets and star systems.”

Minorities and STEM

A major concern is the persistent under-representation of people of color in the STEM disciplines. With the exception of chemistry and medicine, few African-Americans, Latinos and Native Americans are engaged in STEM fields. Three area university faculty members offered insights into the problem and discussed the efforts their institutions are making to reverse the trend.

In “America’s Future Demands a Diverse and Competitive STEM Workforce,” an essay published in “The State of Black America 2011: Jobs Rebuild America” (National Urban League), Rhonda Sharpe, director of the Global Inequality Research Initiative at Duke, noted that in 2010, fewer than 25 African-Americans nationally received doctorate degrees in the fields of aerospace, astronomy, atmospheric and physical sciences, earth sciences and oceanography combined: “The factors impeding persistence at the undergraduate level are academic preparation, adequate financial aid and strong support networks in college.”

While more black high school students are enrolled in rigorous math courses, an even greater proportion of white students take those classes, so significant gaps remain. Between 2000 and 2009, blacks represented 15 percent of the labor force but accounted for only 7.4 percent of the scientific workforce. Numbers for Latinos are only slightly higher, while the Native American presence in the sciences workforce falls in the 0 percent to 1 percent range.

Tarek Echehki, professor in the Department of Mechanical and Aerospace Engineering at N.C. State University, said reversing that trend will require a multi-pronged approach directed at “all levels, from the formative years of elementary school – and perhaps earlier – to the university level, where faculty and R&D scientists run into obstacles while attempting to succeed in their fields.”

Echehki likens the problem to a pipeline “with many leaks diverting people of color – and under-represented groups in STEM, in general – from science and technologies fields.” Plugging those leaks will require “access to opportunities and resources for K-12, overcoming stereotypes of what STEM fields involve (and) misconceptions about the kinds of people who work in these fields,” providing incentives for students “to stay in STEM tracks in college and building resiliency in people who may find themselves isolated or labeled.”

Outreach programs

Caesar Jackson, geophysicist and dean of the School of Graduate Studies at N.C. Central University, is on the front line in the quest to draw more people of color to the STEM fields. NCCU has launched multiple outreach programs designed to “identify, motivate and excite young scientists in the making,” and is the site of the NASA University Center for Aerospace Devices Research and Education.

The NASA-CADRE project was created, he said, to “provide a framework for broadly based, competitive, multi-disciplinary science and engineering research.”

“While the production of the next class of astronauts or space scientists is not a direct goal of the collaboration,” Jackson said, students and faculty across disciplines “support space exploration and space research.”

Darity, the Duke professor who organized the Race in Space conference, added, “STEM training is necessary but not sufficient. We also have to root out discriminatory exclusion for blacks who have obtained all of the requisite training.”

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