

Tahani Amer

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Learning Objectives:

1. SWBAT learned about Tahani Amer, the first Muslim Woman Executive at NASA.
2. SWBAT understand that education is the greatest equalizer via the story of Tahani Amer.
3. Minority students will be motivated upon finding someone who looks like them in the STEM field, while other students will benefit from a more inclusive mindset of who can be a mathematician.



Biography

Tahani Amer was born in 1965 in Cairo, Egypt. Her father, Reffat Ayoub, who was an engineer, who worked at the Nile River water system, inspired Tahani to pursue activities that were otherwise intended only for boys in Egyptian culture, such as riding bikes, fixing cars, and managing business finances. Tahani attended Al Salam High School for Girls in Cairo and she was famous for her talent in mathematics.

As a high school student she loved watching her father fix his car engine and young Tahani imagined doing the same thing. She used to calculate the cylinder and chamber volume as well as depth of the piston in the cylinder. Her fascination with engineering and mathematics in her father's garage came to an end after her marriage when she was 17 years old.

She eventually moved to the United States in 1983 with her husband and two children. At first she hesitated to start college because she could not speak English. However, she found the courage to give it a try at Old Dominion University, Virginia, where she live with her husband, Muhammad Tahani. She received an A in Calculus and gained a lot of respect which convinced her that mathematics is much more prestigious than anything else. Tahani reflects, "When I

came to the U.S. and took my first advanced calculus class, I could not speak a word of English, but I still earned an “A” in the course. I knew then that an engineering career would be rewarding, full of problem-solving and unlimited potential for innovation”.

After her BS in Mechanical Engineering, she received a Master's in Aerospace Engineering and a Ph.D. in Engineering from Old Dominion University. She then received a Black Belt Six Sigma Certificate from Villanova University, after which she enrolled in the University of Pennsylvania's Wharton Executive Education Program. She subsequently enrolled in Harvard University's Kennedy School Senior Executive Business Program.

As a Program Executive in the Science Mission Directorate, Tahani manages the development of spacecraft systems. Her missions include the Surface Water and Ocean Topography (SWOT), Geostationary Carbon Cycle Observatory (GeoCarb), and CLARREO Pathfinder (CPF) missions. Tahani reflects that her favorite moment in her career includes participating in NASA's public earth day events and communicating the importance of Earth science research with the public. It was not easy for a Muslim woman to become a NASA executive. Francesca Donner wrote in New York Times, “Tahani Amer, an engineer who grew up in the suburbs of Cairo, endured a string of rejections before she finally secured a job with NASA’s Aeronautical Research program” (Nov 2020).

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