Explore: Life on Mars?

Scientist Spotlight
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Welcome to the world of astrobiology! My name is Betül, and I am an astrobiologist at the Georgia Institute of Technology. I work in a laboratory, where I am trying to understand why life is the way it is by comparing life’s parts today to what they looked like millions of years ago. It is amazing to study what life was like so long ago!

I didn’t always know that I wanted to be a scientist. Coming from a non-English speaking country, I have faced some challenges. While in college, I wanted to improve my English speaking skills, so I decided to volunteer to work at an international science conference. That conference changed my life! I was amazed by the way those scientists interacted with each other and realized that scientists hold power that could change the world!

The reason that I chose to become an astrobiologist is because it allows me to chase the biggest question of all: Are we alone in the Universe? Life is so beautiful and complex, and yet we know so little about it.

For those of you that like to ask questions, becoming a scientist may be the path to take. Don’t be afraid of asking big questions and always follow your dreams! This sounds cliché, but it is important to remember your dreams in order to stay focused.
Greetings! My name is Tori, and I am an astrobiologist, chemist, and oceanographer at the NASA Ames Research Center in California. My interest in science started very young. Like almost every kid I know, I was curious… about nearly everything in the world around me! Fortunately for me, I had a grandfather who was like my own personal “Mr. Wizard,” and he showed me how to figure out how things worked in something like a scientific way. That curiosity, and that way of doing things, followed me as I got older, and went through school. My curiosity is still with me today, and is what continues to drive me in my work. I often tell people that I could go for a 10-foot walk and find enough things to fascinate me for hours. I never cease to be amazed by, and curious about, the world around us.

Although I was definitely interested in space as a little kid, I never set out to be an astrobiologist. In fact, I started out wanting to be a chemist. I still am – I just apply my understanding of chemistry to understanding life. Eventually, I also got into oceanography, and the sorts of things I studied there – how microorganisms interact with the chemistry of their surroundings – are a good fit for astrobiology. I enjoy the my work now because, it is a very nice combination of being able to work on the science of our very own Earth, while also being able to think about some very big questions – like whether life might exist beyond Earth!

A few bits of advice: If you can, you should always do what you love! If you think science is it, find ways and opportunities to experience what it is really like to be a scientist. Second, let your natural curiosity and imagination drive you. Science is not a set of facts in a book. It is a way of learning about the world around you, and at the heart of that is curiosity and creativity. Let those things be at the core of what you do. Advancement in science really comes from creative thinking.
Hello! My name is Dana Schneider, and I became an astrobiologist because it was a great opportunity to ask new and exciting questions about life on our planet and throughout the entire universe! Astrobiology includes many different fields of science - biology, chemistry, biochemistry, geology, and physics - which means more tools to be able to ask just about any kind of question!

I became interested in science at an early age. My father has a career in chemistry and my mother is nurse. Growing up, I actually always wanted to be a veterinarian (as all little girls do, I think). But in my third year at University of Georgia, I began working in a microbiology lab as an undergraduate researcher and found that I loved doing experiments! I really enjoy asking questions that have never been asked and knowing answers previously unknown. Every experiment produces a sliver of knowledge. Today, when I get data and interpret my results, I have new information that no one else in the world knows but me!

I have easy advice for anyone interested in becoming an astrobiologist or other scientist... ask questions and search for answers! And I say that’s easy because most of you (young people) seem to be naturally inquisitive. Science is all about asking questions and finding answers without a textbook. Because of this, I believe the most important quality for being a successful scientist is CURIOSITY. Of course hard work and dedication are important, but those qualities come naturally from satisfying the curiosity. Since science is all about asking questions, curiosity is a must!
Hello! My name is Nita, and I am a scientist and professor at the University of Akron in Ohio. The main reason why I chose astrobiology as a career was the fundamental, big questions that it strives to answer. Astrobiology deals with the origin of life and the search for life on worlds other than the Earth. I am very interested in the questions that it explores, such as - How did non-living organic matter assemble (form) into the earliest living cells? Does life have to look like life on Earth? It is extremely exciting, rewarding, and humbling to take a scientific approach to addressing at least some parts of these questions.

My parents played an important role in my developing an interest in science. My Father, in particular, encouraged both my older sister and me to ask questions about how nature works, and had a huge library of books on all these topics.

I think that the qualities that have been the most important to my success as an astrobiologist (scientist) are curiosity, courage, hard work & above all, perseverance! The ability to step back and see the big picture of a problem/question is also very helpful.

If you are interested in becoming a scientist, I encourage you to ask questions and not to be afraid of making a mistake! This is especially important in a field such as astrobiology. I know that you may be afraid of "looking foolish" or "standing out in a crowd," but if you don’t understand something, remember that it is highly likely that others in the class also did not understand! The other piece of advice that I would like to share comes from my great-Aunt: "Read, read, read, as much and as widely as you can!"
Greetings! My name is Linda, and my dad had helped me to discover my love for science. He’s one of the smartest people I know and has always been fascinated by science and the “big” questions about the universe and life. I grew up reading his vast science fiction collection, which is all about space travel and life on other planets. He took us to a local park, Alley Pond Park, where we’d collect pond water and look at it under the microscope. The water was teeming with tiny life! He also had a telescope and we would set it up in our small yard and look at the planets and stars. We could see four of Jupiter’s moons and the ring around Saturn, all from our little backyard in Queens, New York!

Becoming an astrobiologist was a long journey for me. I entered college at age 16 as a physics major so I could pursue astronomy. Unfortunately I failed physics in my first semester. After a couple of years studying marine life, I gravitated toward chemistry.

I have spent most of my career exploring ways to gather information about interesting biological (life) systems. A few years ago I was invited to participate in our new NASA funded New York Center in astrobiology at my university.

So, after thirty years in my career, I am finally back to where I started - working on problems that attracted me to a career in science in the first place!

My advice for anyone interested in science: Don’t be afraid to fail! The only way to guarantee that you won’t fail is to not try in the first place.

Be persistent! Be bold!
Hello, my name is Jack! I am a geologist and helped start the NASA Astrobiology Institute (NAI) Group at Arizona State University. I am also involved with some of the current NASA missions to Mars - including the latest mission, Mars Science Laboratory!

Geology is the science that studies rocks and minerals - their structure (how they are put together) and how they change over time. According to my mother, I collected my first rock when I was six years old. By the time I was 10, my collection was so big I had to give a lot of rocks away when we moved. My mom encouraged me by providing empty egg cartons for storing my samples, and by helping me identify my rocks, minerals and fossils. She even bought me my first geology book, "How to Know the Rocks and Minerals." In short, I was hooked early. My nickname in high school was "Stoney" and my nickname now is "Dr. Rock!"

My work at NASA has led me in several directions. Currently, I am working to understand how tiny creatures (called microbes) get preserved as fossils and why? By understanding such things we can improve our chances of finding evidence of ancient life in rocks on Earth and beyond! I have mostly focused on life at high temperatures and life in high salt - that is, on microbes that live in places like Yellowstone National Park and Mono Lake in California.

Because hot springs and salty lakes are such good places to fossilize microbes, these environments are also natural places to explore for fossil life on Mars. So, we have also been looking at images of the surface of Mars for the most likely spots for ancient hot-springs. If we can find such rocks, we will want to go there and bring them back to look for fossils. We hope that these samples from Mars will help us answer the question, "Did life ever develop on Mars?"

The best thing about my job is the excitement of exploring ancient worlds. It is great fun to bring samples back to the lab and uncover more clues using the microscope, chemistry, and other tools. Sometimes I feel like I'm Sherlock Holmes solving a crime!
Greetings! My name is Laurie, and I am a scientist at Caltech / JPL (Jet Propulsion Laboratory) working with one of the NASA Astrobiology Institute teams (Icy Worlds). I work as a chemist (in the lab) simulating the origin of life in hydrothermal vent environments. Hydrothermal vents are hot springs on the ocean floor. I study this to understand how life could have started on Earth, but these environments could exist on other worlds as well, such as Mars.

I’ve been obsessed with stars and space for as long as I can remember and actually have no idea how it started. My "fun" books as a kid were about astronomy and how stars form, though oddly I never had a telescope and never did much stargazing. As an astronomy major in college, the most interesting parts for me always had to do with planets and life. I became fascinated with finding out why there is life on Earth at all.

I recommend that anyone who wants to go into Astrobiology to take a variety of different science classes, and read lots of science books!

I would say that the most important quality for being a successful scientist is being creative. All science is a creative endeavor, but astrobiology especially so. Being an astrobiologist is constantly coming up with new ideas that involve more than one field (astronomy, geology, biology, etc.), and it helps if you enjoy working with others and building ideas with them.