



A JOURNEY

Dr. Serena Auñón-Chancellor's Odyssey

*“Not I, nor anyone else
can travel that road for you.
You must travel it by yourself.
It is not far. It is within reach.
Perhaps you have been on it since
you were born, and did not know.
Perhaps it is everywhere -
on water and land.”*

—Walt Whitman

Leaves of Grass

Maybe Walt Whitman is right: maybe the road we travel—the journey—is everywhere. If so, then for Dr. Serena Auñón-Chancellor, it extends beyond water and land to include low Earth orbit.

Dr. Auñón-Chancellor, or simply “Serena,” as she is known around SEAS, is a NASA astronaut and SEAS alumna who lived for 197 days last year aboard the International Space Station (ISS). She launched for the ISS on June 6 from the Baikonur Cosmodrome in Kazakhstan, and returned to Earth on December 20, landing again in Kazakhstan.

Not three months later, on a rainy day in early March, Serena sat down with two SEAS staff members to answer questions about her recent mission aboard the ISS, her readjustment since the mission, and the decisions over the course of her life that led to a spot on the NASA astronaut corps.

Setting Out for the Journey

As Serena recalls it, her interest in space and the US space program began at around eight or nine years of age, when she became intrigued by shuttle launches and would watch them on television, over and over again.

“We had two small televisions in the house at the time and I would always try and commandeer one to watch any program I could about the space program,” she says.

Her parents noticed how intrigued she was by the launches and realized even

then that she was developing a genuine interest in becoming an astronaut. And she certainly was, but her story is not one of a girl-turned-young-woman with a “NASA or Bust” mindset.

On the contrary, actually. As Serena speaks, it becomes clear that putting NASA front and center at various key decision points in her life was not her way. Becoming a NASA astronaut may have been her goal and her dream, but she was determined first and foremost to make education and career choices that fed her interests and brought her joy.

“The decisions I made in my career, in my education, were not solely because I wanted to end up at NASA,” she contends. “I knew I did at some point, but I didn’t let it influence me so heavily that I turned away from a path that looked interesting.”

Preparing for college in 1993, Serena wasn’t initially certain of what to study. Like many kids who choose engineering, she loved the sciences and was very good at math. She and her father had discussed engineering as a field, and she liked the fact that engineers are problem-solvers. Perhaps following somewhat in her parents’ footsteps, she chose to study at GW. Her mother had studied journalism at GW and her father is a triple SEAS alumnus with a bachelor’s, a master’s, and a doctoral degree, all in electrical engineering.

Serena selected electrical engineering and, once in the program, started becoming aware of all the career paths open to her. She credits her engineering friends with planting the idea of medicine in her mind. They thought she had the right attributes to be a good doctor and they pushed her to consider it.

“I went home between sophomore and junior year and talked to my parents about it and they thought, ‘Okay, great, if this is what you want to do, no problem.’ And my path was kind of set at that point once I became pre-med,” she recalls.

Serena received her bachelor’s degree in 1997 and enrolled in medical school at the University of Texas-Health Science Center at Houston. She says that once she started medical school, she knew it was the right choice for her.

“The first time I saw a patient and I spent time with the patient, I realized that this is exactly where I was supposed to be, no question,” she notes emphatically.

Near the end of her program she discovered the field of aerospace medicine. She had to choose a field of residency, and she already knew that internal medicine would be her primary specialty. It was the field she loved and still does. She learned, however, that the University of Texas Medical Branch offered a combined residency in both internal medicine and aerospace medicine, and she decided, “Well, this is the field for me.” The program had one open spot. Serena got it.

She completed her three-year residency in internal medicine first, followed by an extra year as chief resident, and then completed an additional aerospace medicine residency in 2007. Just prior to that, in 2006, she had started working at Johnson Space Center as a flight surgeon, a civilian physician who looks after the members of the astronaut corps and their families. She continued working in that capacity until July 2009, when she was selected to the NASA astronaut corps as one of 14 members of its 20th astronaut class.

ROCKY INETEN





Attired in a training version of her Extravehicular Mobility Unit spacesuit, Dr. Auñón-Chancellor awaits the start of a spacewalk training session.

She had made it into the astronaut corps, but she did so by listening to herself—and others—not by following a checklist of what she thought NASA wanted.

“So it was this very circuitous route. Some people call it coincidence. I call it kind of visualizing your path and then defining it and living it, and taking advantage of open doors and opportunities. It all ended up working out just fine, as it usually does,” she concludes.

A Mission

If Serena would agree with Walt Whitman that we’re all on our own journeys, she likely would disagree with his notion that we travel by ourselves. That’s not her way—and it’s not NASA’s way. For her, and for NASA, it’s about being part of a team.

She speaks repeatedly of the role of teamwork aboard the ISS, and when asked what sorts of people NASA likes to recruit, she mentions the ability to work as part of a team as the first criterion. Humor is pretty important, too.

While speaking of the close living conditions on the ISS, she adds, “We love folks with a sense of humor. I think that’s important, because if you’re going on a vacation in a tent with five of your closest buddies, you want to make sure that you find a lot of things funny—because that’s what’s going to happen up there.”

But first and foremost, what happens “up there” is science. The ISS is a national

laboratory that maintains a range of international experiments at all times. During her mission, Serena was involved in experiments on treatments for Parkinson’s and Alzheimer’s Diseases, on cancer therapy treatments, and on oceanic science and other topics. The experiments the astronauts conduct are those that can be done only in micro-gravity. For example, on Serena’s mission they studied new ways to deliver antibiotics directly to a wound site using special hydrogels, because in micro-gravity they can watch the way antibiotics migrate through that gel. In oceanic science studies, they looked at the way cohesive forces act in micro-gravity; on the ground they can’t measure cohesive forces, because gravity is an overwhelming force that won’t allow for such measurements.

“I guess the thing I’d like folks to take away most from our mission,” she states, “is that the science we’re doing on the station is really very high caliber science and it’s science that impacts people down here. We did a tremendous amount of science up there that cannot be done anywhere else on this planet.”

She’s quick to note, however, that as a physician on board the ISS, she wasn’t the lead on all the medical studies. It’s a common misconception that she would like to clear up.

“A lot of folks assume, ‘Oh, you were the physician on the mission.’ Nope, I was the *astronaut* on the mission with the physician background,” she asserts. We had geophysicists, we had a geologist, we had a test pilot . . . we’re all trained equally across the board. There is no difference.”

Time is allotted on the space station for more than science, however. In addition to system maintenance to keep the ISS operating properly and daily physical conditioning to keep the body healthy, astronauts can make time for star-gazing and Earth-gazing. Floating in micro-gravity was Serena’s favorite activity, but looking out the station’s cupola was a close second.

“The cupola’s our window to the Earth. Looking out the cupola at night was probably one of my favorite times,” she says.

The ISS orbits the Earth every 90 minutes, so she was able to see “night,” followed by “day,” every 45 minutes. She also was able to see entire continents rotating toward her, and massive thunderstorms looming along the coastlines of continents. Serena says it was the chance to see nature at its finest. The big attraction for the crew was the Northern Lights. “We would all come and gather in the cupola to watch the station pass through [them],” she recalls.

Dr. Auñón-Chancellor helps conduct research on protein crystal growth aboard the space station.





(Top left) The Expedition 56 crew members pose for a portrait in the International Space Station's Harmony module.
 (Top right) Dr. Auñón-Chancellor speaks to a crowd at NASA's Johnson Space Center.



Serena also enjoyed “people-watching” from afar, as it were. She couldn’t see individual people, of course, but she did think about them—a lot.

“Watching the sun rise over the planet’s surface and thinking about all those continents where people are just waking up, and wondering what those people are doing that morning wherever they are is what I spent my time doing looking out the window. My thoughts looking out that window were never vague and generic; they were always very specific,” she says.

When pressed for more explanations of the experience of looking out the cupola, she returns to her roots as an engineer and speaks wistfully about watching cargo vehicles approach the space station to dock.

“To watch those vehicles launch and pull up next to the space station like it was everyday business, no problem, and then watch it perform its maneuver and approach station slowly was just one of the most magnificent things I’ve seen,” she remarks. “A lot of folks would ask me, ‘What’s the neatest thing you’ve seen out of the cupola?’ and, really, it’s that. It’s progress and it’s technology and it’s human engineering at its finest.”

Returning Home

Back on Earth, Serena’s initial concern was not with engineering but with bringing her body back to an Earth-normal state. Astronauts’ bodies are still strong when they return to Earth, but their brains haven’t had to tell their bodies how to move, or walk, or balance for months, so their bodies must relearn these operations. That was her primary task for the first 45 days.

“It’s like parts of your brain that you actively utilize on the ground go to sleep while you’re up there and then they have to wake back up, but it’s amazing to see how fast [it] wakes back up, she muses.”

NASA will soon assign Serena to her next position, which she envisions will be working with other physicians in the astronaut corps as they grapple with medical concerns for future missions, whether to the ISS or even as NASA plans for eventual Moon and Mars missions.

She still loves being a physician, but she also has another love. Serena’s very drawn to spending time with students, teaching and encouraging them. She recognizes the perception that others may have of her and her achievements, and she wants

to remove that in order to persuade them to “shoot for the stars,” too.

“I don’t want them to think of me as some, you know, superhuman person; I’m not. I’m a normal person who was in the right place at the right time and worked hard to achieve what I’d always dreamed about. I think it’s important for people to know that you can achieve whatever you want to achieve. Really, anything’s possible, but you have to create it in your mind first and see it and then let it happen,” she counsels.

She keeps this in mind as she travels the country visiting schools and universities. She maintains a very busy schedule, but draws on the work ethic she says she learned from both of her parents to keep up the pace. She also tries to draw on the graciousness they taught her in giving their time to others.

“Looking at that, I try to give back as much as possible, because you do realize that your time is probably the most precious thing you can give somebody, period,” she states. “Nothing else. Not a shirt, not a sticker, not a signature.”