

Translating complexity: ASU grad finds passion for optimizing health care systems

By Laura Randall, ASU News
May 7, 2026

Editor's note: This story is part of a series of profiles of notable [spring 2026 graduates](#).

When you zoom out, the United States health care system can be an overwhelmingly complex web of intricate connections, dependencies and interactions.

As a critical care nurse and mother, Tiffany Kashima has firsthand experience navigating the challenges of the health care system. This has driven her to pursue new ways to understand this system and improve it for all people.

Now, Kashima is graduating with a Master of Science in complex systems science. She has been named the spring 2026 Outstanding Graduate for the [School of Complex Adaptive Systems](#), an academic unit with the [Rob Walton College of Global Futures](#).

With a passion for science communication, Kashima believes there needs to be a stronger connection between academia and industry to create meaningful impact in communities. During her time at the School of Complex Adaptive Systems, she sought to build partnerships between the school and the medical field and created two research positions for herself doing exactly that.

“Rather than guard my ideas closely, I’ve learned to passionately share them both in and outside of academia,” said Kashima. “In the process, I have made vital connections to disciplines outside my specialty that have significance and influence in the problems I’m pursuing.”

With Centauri Health Solutions, she worked on a project to democratize access to patient medical records. Additionally, Kashima helped create new conceptual frameworks and models for medical education at the Knowledge Donor Program at St. Joseph’s Medical Center.

“The challenge of explaining complex adaptive systems science to a broad, general audience is not trivial; it can be technically dense and abstract,” Kashima shared. “However, persistently improving this skill and finding relatable examples has led to the positions I am excited to hold right now. I have unique opportunities to apply (complex adaptive systems) to medical education in one

domain and address gaps in health care in another.”

During her time at ASU, Kashima founded the SCAS Student Collective to unite students from diverse disciplines and explore how their research interests can converge.

“In this growing academic program, I saw an opportunity to create a collaborative space for students to share research, learn from each other and find opportunities to apply our work,” Kashima said.

With the goal of improving health care through medical education and care delivery, Kashima will begin pursuing a PhD in complex adaptive systems science in fall 2026.

ASU News spoke with Kashima to learn more about her time as an ASU student.

Question: Why did you decide to go back to school to pursue a degree in complex adaptive systems?

Answer: During the COVID-19 pandemic, I was a critical care nurse in the pediatric extracorporeal membrane oxygenation (ECMO) program. A significant challenge was efficiently sharing and evaluating patient data and circuit availability across hospital systems to make informed decisions about resource allocation. Health care systems are data-rich, and modeling this data requires a framework that captures the true signal of the clinical status of a patient or patient flow within the hospital. I desired to challenge the reductionist strategies that lead to surface-level interventions that can’t penetrate to bedside care as intended.

During this time, while studying data science and applied math at ASU, I attended a lecture hosted by the Unit for Data Science and Analytics, demonstrating the power of agent-based modeling for COVID-19 insights. As someone working bedside in critical care, I appreciated how this model intuitively captures a highly dynamic system with many interacting elements from both acute care and public health. This lecture was the definitive moment that led me toward complex adaptive systems.

Q: What are you most looking forward to while continuing your education in the PhD program?

A: I'm looking forward to using my clinical skills to guide and deepen my research questions. I've always held a passionate stance toward interventions that durably impact bedside care that cannot simply percolate from a top-down approach. I believe we must include context and learned wisdom from those at the level of the intervention itself. We must understand how the relationships of clinician, patient and health care system interact like the nuanced musicality of a symphony, not the brute-force beat of an administrative hammer. In the School of Complex Adaptive Systems, I will explore and demonstrate this rigorously.

Q: How did you balance working as a critical care nurse and pursuing a master’s degree?

A: Being a nurse, a mom and a full-time student has not been easy. It's important to be transparent about both the struggle and the success. The systems I had to balance this evolved with each iterative step I've made academically. I've had to extend classes and work out flexibility many times as I've responded to the life challenges that come up naturally in any family. Rather than look back with shame, with the rigid thinking that successful students never falter, I've learned

to reframe this as positive.

Each struggle is an experiment where we fail, learn and improve. To avoid stagnation, I am always searching for ways to improve time management, opportunity management and research planning. Now, I have a resilient workflow that's robust to my constantly pivoting attention. I've learned to protect my time outside of ASU. I'm dedicated to physical activity, family, friendships and the things that bring me joy. Having a strong identity outside of academics protects my capacity for academic work rather than reducing it.

This story originally appeared on [ASU News](#).

Main image



Tiffany Kashima is the spring 2026 Outstanding Graduate for the ASU School of Complex Adaptive Systems. Photo courtesy Tiffany Kashima