Student Spotlight: Jenny Jarvis

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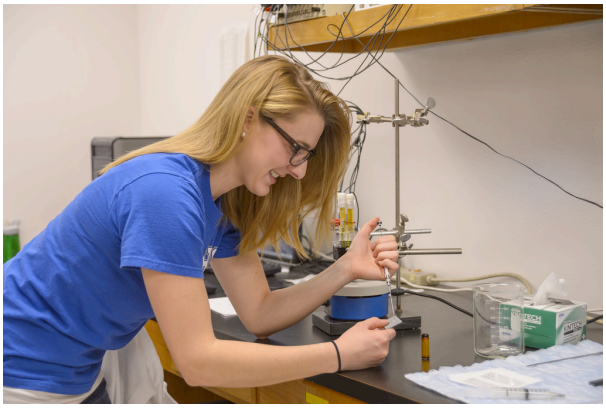
Joint Graduate Program in Biomedical Engineering
University of Memphis Herff College of Engineering | University of Tennessee Health Science Center



Growing up, I was always especially interested in science and medicine and how the two fields relate. I knew I wanted to pursue a degree in science but it wasn't until being immersed into research opportunities during my undergraduate career that I realized my true interest – the perfect dose of science and medicine in the emerging field of biomedical engineering. I graduated from Northern Michigan University in 2012 with a bachelor's degree in ACS certified chemistry. I was drawn to the unique joint program at the University of Memphis and UTHSC. The joint program allows for additional resources and collaborations with physicians and outside professionals. The department covers such a vast array of projects that it's almost guaranteed everyone will find an area to match their interest.

I conduct research in the biosensor laboratory under the direction of Dr. Ernö Lindner where I am currently working on an industrial project involving blood gas analyzers used in critical care units. The analyzers utilize sensor cards that require not much more than a drop of blood to obtain readings for over a dozen different analytes including ions, glucose, and blood gases.

My specific interest is in reducing the ready time or "hydration time" of the sensors. It is referred to as the hydration time because it is the first time these sensors come in contact with solution so the sensor is actually becoming hydrated. Until the sensors reach equilibrium with the solution, accurate and precise readings cannot be obtained. The goal of my research is to decrease the hydration time from its current 60 minutes down to 15 minutes.

To reach these short hydration times in these miniaturized sensors, we are using conductive polymers, an emerging material whose discovery and development earned a Nobel Prize in 2000.

Though current results utilizing the conductive polymer show hydration times of around 15 minutes, the long-term stability is subpar. Future research will focus on modifications to the fabrication process (e.g. contact surface, deposition method) in hopes to improve the long-term stability.

I hope to one day lead an idea from the ground up to further revolutionize the field of biomedical engineering and improve the health care of many people. I will receive my M.S. in Biomedical Engineering this spring and continue on to pursue my PhD. Though I am uncertain whether I will eventually find my career in industry or academics, the University of Memphis is equipping me with the knowledge and resources necessary to be successful in either setting. Through my research project, I have collaborations with individuals in industry, which allows me to gain knowledge and experience regarding industrial concerns and regulations while continuing my work in an academic laboratory where I'm encouraged to generate and test new ideas.