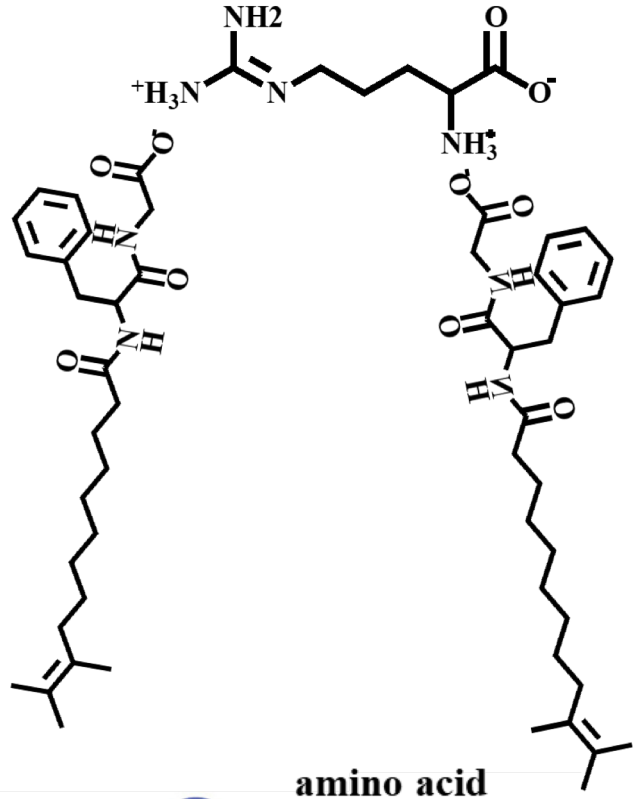
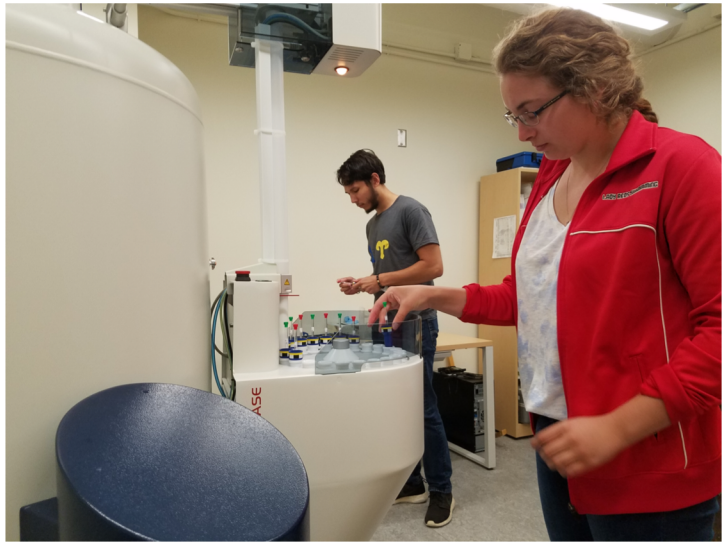
NMR Investigation of the Effect of pH on Micelle Formation by an Amino Acid-based Surfactant

Researchers: Grant Mahant, Elizabeth Pieroni, and Kevin Morris

Biourfactants like the molecule shown below are used in detergents, food, and cosmetics. They are also biodegradable, bio-compatable, and made from natural materials. In aqueous solution, these molecules aggregate into structures called micelles which have an oily, hydrocarbon core and a polar or charged surface made up of amino acid molecules. This research project used nuclear magnetic resonance (NMR) spectroscopy to study how biosurfactants aggregate and how positive cations bind to the negative micelle surface.





Grant Mahant (‘20) and Elizabeth Pieroni (‘19) worked on this project with Professor Kevin Morris during the summer of 2018. Grant is studying Chemistry and Management at Carthage. Elizabeth is a chemistry and pre-engineering major.