Catherine Leimkuhler Grimes obtained a BS in Chemistry in 2001 from Villanova University, where she conducted undergraduate research in the laboratories of Professor Eduard Casillas. She obtained her masters in 2003 from Princeton University and PhD from Harvard University in 2006; her entire graduate work was conducted under the guidance of Professor Daniel E. Kahne, which focused on synthesizing glycopeptides to combat antibiotic resistance. She closely collaborated with Drs. Suzanne Walker and Christopher Walsh thereby broadening her investigation of vancomycin resistance to the interface of chemistry and biology. From 2006-2011, Catherine was a HHMI and Cancer Research Institute Postdoctoral fellow in the laboratories of Erin O'Shea (Harvard University, Molecular and Cellular Biology) and Daniel Podolosky (Massachusetts General Hospital). During her postdoctoral studies she took her chemical intuition and expanded her biological skillset to uncover problems at the molecular and cellular biology levels while delineating the immune system and cell signaling.

Catherine joined the University of Delaware's Chemistry and Biochemistry Department as an Assistant Professor of Chemistry and Biochemistry in 2011. She was appointed a joint faculty in the Department of Biological Sciences in 2012. Her research program focuses on the development and chemical synthesis of small molecule carbohydrate probes that mimic intermediates of bacterial cell wall biosynthesis and bacterial-host immune recognition. Dr. Leimkuhler Grimes is nationally recognized as a young leader in the field of chemical biology, as she has received numerous awards including a Pew Biomedical Scholars Award, a Cottrell Scholar, and an Alfred P. Sloan Research Fellowship. She received the American Chemical Society's Infectious Disease Young Investigator Award and the Dryefus Teacher Scholar Award. She is the codirector of a NIH funded graduate program at the interface of chemistry and biology and the faculty mentor to a dynamic group of undergraduate STEM majors, "The Scientistas".