Dr. Dil Ramanathan, more commonly known as “Dr. R.,” is the graduate coordinator of the Master of Science in Biotechnology program and Assistant Professor in the NJ Center for Science, Technology & Mathematics. Her area of expertise is physical and analytical chemistry and she instructs the NJCSTM freshmen chemical systems courses and the graduate biotechnology analytical chemistry courses. Because of her efforts since joining the University in 2008, the MS in Biotechnology has grown and offers graduate students the opportunity to closely interface with scientific industry professionals.

Dr. Ramanathan’s laboratory research is rooted in physical chemistry and her instrument of choice is the mass spectrometer. Her ongoing research projects include a study of the metabolic profiling and assessment of environmental pollutants using the model organism zebrafish.

In November of 2011, she co-authored with two undergraduates, Sara Maass and Rebeca Pinhancos, a paper entitled “High-resolution mass spectrometry method for the detection, characterization and quantitation of pharmaceuticals in water” in the prestigious peer-reviewed Journal of Mass Spectrometry. Pharmaceuticals end up in the public wastewater systems due to disposing of unused drugs into wastewater systems and through excreta of patients. The levels of pharmaceuticals are very low and it is rather difficult to develop analytical techniques to detect and accurately measure them. As a result of incomplete removal during clean-up, pharmaceuticals and/or associated derivatives enter the drinking water supply. Dr. Ramanathan's research group has developed a rapid and sensitive LC-HRMS method using a state-of-the-art analytical instrumentation (LTQ Orbitrap) to separate and identify pharmaceuticals and other degradants in water. These analytical approaches have been extended to analyze water, fish and shellfish from the New Jersey area. The ultimate objective is for the students to participate in research projects to improve the quality of water around the state and the nation.

Those students who nominated Dr. R for Research Mentor of the Year spoke of her commitment and dedication to working with them for multiple years in their development as strong young scientists. Her students describe her laboratory team environment as one that is simultaneously research driven and nurturing. Indeed, her team of research students has presented at international conferences, including having the first undergraduate present as symposium speaker at the Pittcon Analytical Conference in Atlanta, Georgia. Her students have secured internships at many pharmaceutical companies in the state. A student who has been offered admission into multiple doctorate programs in analytical chemistry summarizes her nomination of Dr. R: “A mentor can be a trusted friend, counselor or teacher that uses their experience to help mold us into better people. I am very fortunate to say that my research professor Dr. R is all those things and more.”