

RESEARCH

CEE Professor Wen Zhang Shares First-Hand Knowledge of the Value of Undergraduate Student Research



The NJIT Undergraduate Research and Innovation Seed Grant (URISG) Program provides up to \$500 to student teams to purchase project supplies to demonstrate the proof of concept of their research proposal and the development of a prototype of their project. The moment Dr. Wen Zhang received the Call for Proposals inviting undergraduate students to participate in the spring 2015 URISG program; he immediately invited students from his Introduction to Environmental Engineering (EnE 262) class to participate. He knows all too well from his personal experience of the great opportunity being offered to them. Three students in his class volunteered immediately and the three-person, all female team of CEE sophomore students Marah Angelica Magpile,

Christina Nelson and Julissa LaMadrid was formed. “I decided to sign up for this project because I wanted a hands-on experience in my field and felt it was a good opportunity to start with interesting research. This has really benefited me a lot because it has opened a lot of doors, thanks to Professor Zhang, to other opportunities in the environmental engineering field. It's a really good starting experience and I learned a lot” says team member Marah Angelica. The topic of the team’s research proposal is based on some of Dr. Zhang’s ongoing research work creating innovative reactive membrane for algal separation and pretreatment for biofuel production.

Born in Beijing China, Dr. Zhang received his bachelor’s and master’s degree at Tsinghua and Tongji Universities in China and Ph.D. at Georgia Tech. Zhang credits his participation in a student research training

program at Tsinghua (similar to the NJIT URISG) along with the mentoring and support provided by faculty mentors with providing him with a successful research experience and as his motivation for wanting to reproduce a similar experience for NJIT students.

“Although this is my first URI project, I began mentoring students in 2013. Conducting research, mentoring and advising students is part of their training and helps them develop. Early-on involvement with research gives them a better understanding of the curriculum; they gain access to working with Ph.D. students and exposure to engage in experiments. I do not want to just showing them the knowledge, but I want to increase their passion and broaden their knowledge base and expose them to conducting research in new and exciting areas outside of the traditional engineering discipline” said Zhang. Students are also able to list their research experience on their resume, be eligible for recommendations and scholarships and a lifetime mentor. “As a result of her participation in this program, I was honored to be able to nominate a team member for a fellowship and to support her application to participate in the NJIT Provost’s Summer Research Program.” Recently Professor Zhang’s mentor from Tsinghua University visited him at NJIT to tour the CEE research facilities in order to establish some research collaborations.

Zhang does not want his students to confine themselves to traditional civil and/or environmental engineering projects. He teaches them how the use of inter-disciplinary knowledge will benefit their career and to think of how material science, biotechnology, and chemistry will help them seek sustainable solutions. For instance, “One of the traditional areas in Environmental Engineering is wastewater treatment. In order to develop innovative processes to lower high energy consumption and increase the removal efficiency of trace level contamination, you must include new knowledge that comes from other disciplines and develop novel materials as catalysts, filters, membranes that can enhance the treatment efficiency while not to increase the treatment cost or energy demand”. Zhang practices what he preaches as he is currently engaged in mentoring a few chemical engineering and architecture students and also trying to link Civil Engineering students with different disciplines.