

Tulane awarded nearly \$1 million by Board of Regents for research that impacts industry, workforce

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Hank Ashbaugh, a chemical engineering professor in the Tulane School of Science and Engineering, says a grant from the Louisiana Board of Regents will promote a high-tech workforce in Louisiana and across the Gulf South. (Photo by Paula Burch-Celentano)

The Tulane University Department of Chemical and Biomolecular Engineering (CBE) has received a nearly \$1 million grant to fund research infrastructure that will

encourage more collaborations across Tulane and the region in material sciences.

The five-year \$996,981 grant from the Louisiana Board of Regents will also fund a new undergraduate research program in the [School of Science and Engineering](#) to promote a high-tech workforce in Louisiana and the Gulf South.

“This project will significantly support collaborations with partners in local industry to translate academic research to industrial practice, which will have a positive impact on Louisiana’s economy,” said [Hank Ashbaugh](#), a professor of chemical engineering at Tulane.

The grant will enable the department to enhance and expand its research capability through the acquisition of seven highly specialized instruments aimed at addressing fundamental and applied research problems. The instruments will expand the department’s research footprint and portfolio, leading to enhanced external funding, high quality publications, doctoral student opportunities and growth of the department’s graduate program.

Ashbaugh said the instruments have myriad applications, from analyzing reactions in advanced batteries in order to optimize their performance and increase their lifetimes to building up new materials to deliver drugs using lipid and polymer-based drug carriers. An instrument called a quartz crystal microbalance can be used to measure the deposition of trace contaminants like coronaviruses on surfaces, and an optical microscope can be used to replace synthetic polymers with biodegradable alternatives to minimize plastic waste.

“The instruments acquired under this grant build on investments from Tulane University and the Louisiana Board of Regents to fortify the Department of Chemical and Biomolecular Engineering’s strength in materials research,” Ashbaugh said. “This will enable us to build next generation functional materials that address grand challenges in health, energy and the environment.”

In addition, the grant will establish an Undergraduate Research Scholars program that will recruit a diverse cohort of five students each year of the project for a total of 25 students. The students will be recruited from Tulane and Xavier University.

“Students will engage in research and educational activities to support a student pipeline for graduate study in STEM, promoting a high-tech workforce with roots in the Gulf South,” Ashbaugh said.

Ashbaugh said investment in the CBE department's shared lab infrastructure will have an immediate positive impact on the research of its faculty along with 19 other Tulane faculty across the School of Science and Engineering and the School of Medicine. In addition, he said, the undergraduate scholars program will enable faculty to develop proposals that address emerging and scientific and engineering challenges.

"The state-of-the-art instruments acquired will help attract high quality faculty, growing Tulane's research intensity. These facilities will also be available to researchers outside Tulane, increasing the project's collaborative impact.

"This project will significantly support collaborations with partners in local industry to translate academic research to industrial practice, having a positive impact on Louisiana's economy.

Joining Ashbaugh as co-principle investigators (PIs) on the grant are CBE professors Daniel Shantz, Vijay John, Julie Albert and Nich Sandoval.

In awarding the grant to Tulane, the Board of Regents said the project will help CBE create new knowledge that may lead to "disruptive breakthroughs." It said the inclusion of an undergraduate research program will create opportunities for students to be trained in cutting-edge industry-standard tools and contribute to the economic development of Louisiana and the nation.

"The research faculty are exceptionally qualified, well-published, and well-funded," the Board of Regents said. "The work plan is detailed and sensible. The outcomes are transformative."