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## National Science Foundation Grant to Fund Mass Spectrometry Instrumentation

Winthrop University

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# National Science Foundation Grant to Fund Mass Spectrometry Instrumentation

## Quick Facts

- Winthrop's chemistry program has received a National Science Foundation grant.
- The \$282,309 grant will allow the program to buy equipment to help undergraduate research.



Jason Hurlbert

ROCK HILL, S.C. - The **National Science Foundation** recently announced that Winthrop's chemistry program has been awarded \$282,309 to purchase **mass spectrometry instrumentation** to enhance undergraduate research and student research training.

The **matrix-assisted laser desorption ionization (MALDI) time-of-flight (TOF) mass spectrometer** analyzes biopolymers such as proteins and large environmental organic molecules which cannot be analyzed by more conventional ionization methods. It will be used to provide insights in the role of arginine methylation in cancer studies, to probe the structure and function of a new class of peptide hormone receptors affecting obesity, to identify novel enzymes for use as biocatalysts in the degradation of biomass and to rapidly identify specific biomarkers from indicator organisms in the Catawba basin. None of these studies are currently feasible at Winthrop and all would couple existing instrumental resources with the proposed instrument to dramatically advance the research capabilities of the university.

Winthrop's application was one of only 14 chosen to receive funding from 75 proposals submitted by universities with non-Ph.D. chemistry programs. "This represents the largest National Science Foundation research grant in Winthrop's history," said Pat Owens, chair of the **Department of Chemistry, Physics and Geology**.

The instrumentation will significantly improve Winthrop's faculty-mentored student research and student research training experiences. The submitted proposal estimated that 240 Winthrop students, 17 faculty and three to five industrial scientists will use or be trained on the instrumentation each year. The acquired mass spectrometry instrumentation will be managed by a bioanalytical mass spectroscopist and three analytical chemists.

The instrument will be used extensively in the university's chemistry and biochemistry courses. The proposed instrument will also directly impact seven research projects and five faculty members in the Department of Chemistry.

"This is one of the most heavily used research tools in the biotechnology and pharmaceutical industries," Owens said.

**Jason Hurlbert**, an assistant professor of chemistry, is the principal investigator for the grant, while other chemistry faculty members, Chasta Parker, Takita Sumter, and **Cliff Calloway**, are listed as co-principal investigators. Winthrop should receive the instrumentation during the current academic year and immediately incorporate its use into laboratory coursework and for student research projects.

For more information, contact Owens at 803-323-4925 or [owensp@winthrop.edu](mailto:owensp@winthrop.edu).

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