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# Professors Receive Nearly \$300,000 for Learning Study



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Mathematics and education faculty to collaborate on 3-year project

Sacred Heart University's Elliott Bertrand, Lindsay Keazer and Jillian Schreffler have received a grant of nearly \$300,000 for an interdisciplinary initiative to promote Universal Design for Learning (UDL) in undergraduate mathematics courses. Bertrand is an assistant professor of mathematics in the College of Arts & Sciences, and both Keazer and Schreffler are assistant professors of teacher education in SHU's newly renamed Isabelle Farrington College of Education & Human Development. Jennifer Phaiah, assistant clinical professor of teacher education, will also serve in a supporting role.

Nine math faculty members will participate as part of a three-year study that seeks to optimize teaching and learning by providing multiple means of engagement, representation, and action and expression to better align with students' diverse learning needs.

The grant, titled "Integrating Methods for Universal Design for Learning in Introductory Undergraduate Mathematics Courses," comes from the National Science Foundation, which has committed \$299,941 to be distributed between June of this year and May of 2025.

SHU's sponsored programs team was integral in supporting the faculty team's preparation of the grant proposal, and Jason Moliterno, chair of the math department, also supported the initiative.

The project's main goal, according to Bertrand, "is to support faculty's use of UDL strategies in introductory-level math courses at SHU." For example, one section of the UDL guidelines recommends that teachers "illustrate through multiple media," so they might include helpful diagrams in teaching materials or employ interactive graphics to supplement text-based information, Bertrand said. Another UDL checkpoint ("optimize individual choice and autonomy") might lead educators to create assignments that give students more engaging opportunities to choose a specific application of the course content to investigate.

“The research team will work initially in collaboration with consultants and other faculty to prepare a UDL assessment instrument that will be used to measure the implementation of UDL strategies in the classroom,” said Bertrand. Faculty recruits will participate in ongoing professional development that provides opportunities for them to reflect on and implement UDL strategies that improve students’ access to course content. Those faculty also will participate in professional learning communities to collaborate and share experiences with colleagues.

Bertrand said the study came about after spring 2019, when SHU offered a professional development session on UDL to show that faculty could (and should) make improvements both in and outside the classroom to better accommodate learners’ diversity. “This new project is a realization of that effort,” he said.

Schreffler, who specializes in special education, said the study is important because many students struggle when it comes to STEM (science, technology, engineering and math) courses, and many faculty in those departments across the U.S. don’t have a background in teaching with UDL. “I’m excited to be able to utilize the UDL framework to help make STEM content more accessible for all students,” said Schreffler, who will be creating the UDL observation rubric to be used with the math department’s faculty, while also providing professional development on the UDL framework to study participants. In addition, she will help with observations and data collection.

Keazer brings knowledge of mathematics education research and theory on best practices in teaching to the study. “In the first year, we will be doing some development work, mapping the existing research and theories on best practices in math education onto the different components of the UDL guidelines. This mapping will help support math faculty participants in making choices about what areas of their teaching they want to improve to align with UDL guidelines,” said Keazer, who also will support professional development. “The findings will be beneficial to the field as a whole, but we hope that, at SHU, this culture of using UDL as a lens to examine our teaching to improve it might spread beyond just the participants to other math or university instructors, while also benefitting each individual student.”

The study trio will begin recruiting faculty participants who are committed to continuously re-examining their teaching alongside departmental colleagues, said Bertrand. “We are fortunate to have faculty at SHU, especially within the Department of Mathematics, who actively share resources, ideas and advice,

and this project provides support for structuring that collaboration around UDL,” he said.

*From left are Professors Lindsay Keazer, Elliott Bertrand and Jillian Schreffler (photo not available).*