Fondren Fellows

Project Title: Developing a Framework for Enhancing Teaching with AI

Brief Summary:

This project involves working with Rice's Center for Teaching Excellence (CTE) faculty and Fondren Library staff to synthesize literature on AI in educational contexts in order to create and pilot-test a framework for evaluating and implementing effective AI teaching practices.

Project Description:

During the current academic year (2024-2025), a Fondren Fellow has been working with the Center for Teaching Excellence (CTE) faculty to understand the role of pedagogical research in the CTE's mission, curate a collection of pedagogical research published by Rice faculty members, and create a resource that documents key themes, findings, and trends of this research over time. One of our preliminary findings is that artificial intelligence in teaching and learning is a relatively under-investigated area for Rice researchers, despite the explosion of articles and books on uses of generative AI in the classroom in the past three years. Beyond Rice, existing research on AI in teaching is quite preliminary and not well-synthesized.

The goal of the current project is to conduct a more comprehensive investigation of published research on the use of AI for teaching, which will inform the development of an evidence-based framework for evaluating and implementing effective AI teaching practices. The project is guided by three research questions:

1. What are the key findings from research on AI in higher education with implications for teaching?
2. What principles emerge from the literature that can inform a framework for evaluating and implementing effective AI teaching practices?
3. How does the framework impact an instructor when planning and teaching a library workshop?

The project will have three potential impacts: First, the framework will be pilot-tested to enhance the planning and teaching of a library workshop within the scope of Research Data Services. Second, the results of the project will be shared with faculty, staff, and graduate students through the Fondren Fellow's end-of-year presentation. Finally, the higher educational and research library communities may be impacted by our efforts to share the framework through future

publications and presentations. We also plan to pursue research and grant funding to implement the framework in graduate STEM education.

The project has good feasibility for several reasons. It poses clear and focused research questions and uses existing library and CTE resources and expertise. The mentor has worked with three Fondren Fellow projects in the past, and the goals of all projects were accomplished within the two-semester time frame. Furthermore, a strong partnership exists between Fondren and the CTE, with a demonstrated track record of successful collaborative projects. I have confirmed that three library staff (Sue Garrison for subject-area liaison expertise and Anna Xiong and Sean Smith for workshop pilot-testing) will provide support for this project.

Outline the key tasks that the Fondren Fellow(s) would work on.

Fall semester: Research and Development
- Meet with the mentor and CTE faculty and staff to obtain an orientation to CTE mission and resources, pedagogical research, and the goals of the project.
- Meet with Fondren staff for an overview of tools and search strategies and to plan the project's pilot-testing and feedback phase.
- Create and implement a search strategy to identify related literature.
- Narrow the identified literature to the most relevant books and articles.
- Create a spreadsheet of publications with key metadata.
- Synthesize findings from the database of publications, extracting key themes that will guide the decision-making framework.

Spring semester: Pilot-testing and Feedback
- Draft the framework.
- Collaborate with Fondren staff to apply the framework to a new or existing library workshop.
- Obtain feedback from the workshop instructor(s) on their experience with using the framework.
- Present a summary of the project, outcomes, and next steps as part of the CTE's Pedagogical Sciences in Practice (PSP) programming. This work will also be shared in the Rice Research Repository.

What qualifications would you expect from students working on this project?

- Intermediate-level knowledge of the research process, including skill in finding peer-reviewed scholarship on a specified topic
- Beginner-level experience with using generative AI for academic tasks
- Interest in disseminating evidence-based teaching practices
- Interest in artificial intelligence in educational contexts
- Strong motivation and work ethic

What would students learn through their participation in this project?

- Develop skill in finding, analyzing, and summarizing literature.
- Deepen understanding of evidence-based practices in education.
- Strengthen both oral and written communication skills.

- Enhance collaboration skills by working with a multidisciplinary team.