

Project Title

Design, Development, and Delivery of Python Workshops

Project Mentor(s)

Catherine Barber

Project Summary

Fondren's Research Data Services supports Rice researchers in strengthening their data skills. An area of growth for our department is creating learner-centered training focused on data analysis and visualization using open resources. The proposed project will involve designing, developing, and delivering effective workshops on Python programming.

Project Description

Data literacy is an essential, cross-cutting competency in higher education and a growing part of research libraries' missions (Burruss, 2022). This trend can be seen in various Rice initiatives, including the creation of data science programs (e.g., minor in Data Science) and the inclusion of data-focused courses within numerous undergraduate programs.

In 2020-2021, Fondren library staff partnered with Ithaka S+R to explore social science instructors' experiences with fostering data literacy (Spiro et al., 2021). This report concluded that Fondren is well-positioned to help fill instructional needs through consultation and data workshops. With this in mind, Fondren's Research Data Services department is revising its resources and planning new learning opportunities to meet the demand for data science instruction at Rice.

Because Python is one of the most commonly used open-source programming languages, many of Research Data Services' offerings focus on teaching students to use Python. In the proposed project, a Fellow with Python programming skills will collaborate with Fondren's data services specialist to create and implement workshops for student researchers.

The project has the following goals:

- Design, develop, and deliver two workshops—an introduction to Python and an intermediate workshop on the Fellow's choice of Python topic.
- Create a high-quality, user-friendly, and accessible "Python guide" for the Research Data Services webpage, based on workshop feedback and tailored to the needs of Rice students.
- Mentor the Fellow on effective workshop design, presentation skills, and project management skills.

Impact:

This project will have numerous benefits. The Fellow will deepen their expertise in Python while learning best practices in teaching. Rice students enrolled in data science and statistics courses will have the opportunity to learn introductory and intermediate Python skills in a supportive training setting. Rice faculty will have a resource to which they can refer students who need to acquire or brush up on Python skills prior to or during course and lab work. Finally, students from Rice and other universities who visit the Fondren website can supplement their learning with the Python guide.

Feasibility:

Because the Fondren Fellow will already have a strong background in Python, the main focus of the fellowship will be on developing teaching, presentation, and program management skills, all of which are within the mentor's purview. The tasks can be implemented within two semesters, with sufficient time allotted for workshop design, development, delivery, and evaluation (Fall), and workshop refinement/expansion and creation of the Python guide (Spring).

Key Tasks for Fellow(s)

Key tasks and tentative timeline:

September

- Participate in orientation and training
- Assist with conducting needs assessment to identify possible workshop content
- Create workshop #1 goal and learning outcomes
- Outline workshop #1 content

October

- Assist with workshop promotion
- Create workshop #1 materials (slides, clean dataset, handout)
- Practice workshop #1 delivery
- Deliver workshop #1

November/December

- Review and reflect on evaluations
- Refine workshop #1
- Begin outline of Python guide
- Complete self-reflection

January

- Brainstorm possible topics for workshop #2
- Gather input and select topic for workshop #2

February

- Assist with workshop promotion
- Re-deliver workshop #1
- Create workshop #2 goal and learning outcomes
- Outline workshop #2 content
- Complete outline of Python guide

March

- Create workshop #2 materials (slides, clean dataset, handout)

- Practice workshop #2 delivery
- Deliver workshop #2
- Continue work on Python guide

April/May

- Review and reflect on evaluations
- Complete Python guide
- Complete self-reflection

Qualifications

Python programming experience (at least intermediate level) is required. Strong communication skills, good time management abilities, and self-reflective capacity are preferred. Applicants should be interested in developing teaching/presentation skills.

Learning Outcomes

The Fellow participating in this project will learn to design effective workshops, including how to create goals, learning outcomes, and content; how to create engaging, interactive, and learner-centered activities; how to evaluate the outcomes of a workshop; and how to use feedback to improve future workshops. In addition, the Fellow will strengthen their presentation skills and will gain experience with project management. The fellowship also provides an opportunity for the Fellow to network with staff in the library and peers in various academic disciplines.