

**Project Title** AI-Enhanced Teaching of Text Analysis with Python: Connecting Library Instruction to Industry Documents Archives

**Project Summary** Help build a complete AI-enhanced Python text analysis curriculum for non-programmers, covering NLP fundamentals from text pre-processing to topic modeling and text classification. Use real digital archives for meaningful learning. Gain hands-on experience designing accessible instruction that bridges library teaching and campus research.

**Project Description** This mentored project offers a unique opportunity to directly impact how the library supports campus research using vast archival collections. You will design courses that fit into a comprehensive text analysis curriculum, gaining hands-on experience with Python, natural language processing (NLP), and testing how AI assistance can effectively enhance learning outcomes. This work will be conducted using a real-life, large archival collection.

Fondren Library is committed to providing researchers with essential data analysis skills. Currently, we offer a set of standalone workshops in text analysis, covering topics such as using simple online tools for basic visualization and frequency analysis, and using Python for text data preprocessing and sentiment analysis. This project is designed to fundamentally transform these individual offerings into a coherent and multi-level curriculum. This new modular structure will systematically guide learners from foundational natural language processing (NLP) concepts through the application of advanced textual analysis methodologies.

A critical component of this instructional transformation is the direct connection to the Industry Documents Library (IDL). The IDL is an unparalleled and nationally significant collection of internal corporate documents from major actors in the tobacco, pharmaceutical, food, chemical, and fossil fuel industries. By utilizing these authentic, high-impact public health archives as the primary dataset throughout the workshop series, we ensure that foundational library instruction that teaches essential skills has meaningful, societally relevant impact.

### Key Tasks

- **Needs Assessment & Resource Identification:** Conduct surveys and/or interviews with Rice students and researchers to determine training needs and barriers. Review the Industry Documents Libraries collection to create suitable datasets for workshops, determining the best document types and tailoring them for in-class use.
- **Curriculum Development & Instruction:** Develop comprehensive lesson plans, including modules for text preprocessing, topic modeling, and text classification, complete with code blocks and instructional comments.
- **Instructional Assessment:** Evaluate the effectiveness of integrating AI assistance into the instruction, gathering feedback to determine how AI can support learners across different skill levels.

### Anticipated Project Outcomes

- Lesson plans and ready-to-use teaching/working dataset(s) for a workshop series.

- Documented best practices guide – a practical handbook for AI-assisted text analysis instruction.
- Open educational resources – Python notebooks and code templates shared through platforms like GitHub.
- (Optional) Scholarly dissemination – conference presentations and/or peer-reviewed publication.

## Qualifications

- Have at least one of the listed previous research experiences: class project, independent study, research assistantship, or have completed at least one research methods course.
- Proficiency in Python programming, particularly in Natural Language Processing fundamentals.
- Excellent written and verbal communication skills.
- Experience using AI tools (ChatGPT, Claude, Copilot, Gemini, or equivalent) for academic or personal purposes.
- Ability to work independently while meeting regular deadlines.
- Available to commit an average of 5-10 hours per week.
- **Preferred Qualifications:** Familiarity with qualitative research methods; experience in instructional design or teaching; interest in archival research and digital humanities; previous library work.

## Learning Outcomes

- **Educational research:** Understanding how people learn to code and what makes instruction effective.
- **Curriculum design:** Creating accessible, scaffolded learning experiences for non-programmers.
- **Real-world applications of programming skills:** Connecting technical skills to public health and digital/medical humanities scholarship.
- **UX research:** Conducting surveys and interviews to learn about training needs and assessing the effectiveness of AI tools.
- **Professional skills:** Project management, documentation, presenting findings, and collaborating across communities.