Program for Library Support of Inquiry Based Learning at Rice

I. Library Instruction and the Inquiry Scaffold

This Program clarifies library instructional support for the integration of Inquiry-Based Learning (IBL) into the university curriculum. To develop autonomy as researchers, students need experience and, often, instruction in the skills of finding, understanding, evaluating and communicating information. The library's instructional programs, teaching information literacy, data literacy, digital scholarship, the use and creation of digital media and more, can helpfully intervene at various points in students' paths to autonomy as researchers and learners. By setting the library's instructional programs in the context of the QEP's Inquiry Scaffold[1] and then describing our departments and their class offerings, we hope to stimulate further collaboration between faculty and library staff and to increase the benefits to students of our teaching and resources.

The QEP's Inquiry Scaffold most explicitly refers to information literacy and the use of library resources in the "Embark and Clarify" facet at the most advanced, "Unbounded" level, when students are able to develop their inquiries "based on... literature." At this stage, students can explore their research interests in response to current developments in their field. Individual consultations, which the library staff regularly provides to advanced undergraduates, graduate students and even faculty, may be the most appropriate intervention for many students working at this level. However, the Scaffold provides for students' skills and knowledge in other facets, at lower levels, to help them build towards more independent inquiry.

In the more bounded levels of the "Find and Generate" facet, many students could clearly benefit from guided use of the library's resources. Practice in selecting and searching library databases can lay the foundation for future fluency with disciplinary literature sources. At the same time, students could gain fundamental skills in the "Evaluate and Reflect" facet of research through their introduction to the structures of scholarly communication and the signs of authority and credibility that library sources typically provide. The library not only provides ready structures for evaluating sources, it benefits students by reducing their reliance on easily available but less reliable sources on the internet.

The library teaches skills that contribute in several ways to the "Analyze and Synthesize" facet, including how to manage, organize and clean data, and the use of bibliographic management software to organize and cite sources. These classes and others, described below, are offered through the Digital Media Commons (DMC) and Research Data Management Team.

With regard to the "Communication" facet, the DMC supports audiovisual communication of many kinds through workshops and online learning resources. The GIS/Data Center is a vital

[1] Inquiry Scaffold on the Rice IBL site at https://ibl.rice.edu/faculty-resources/assessment/inquiry-scaffold

resource for analysis and presentation of geospatial data. And the Woodson Research Center, in addition to helping students access and work with archival materials, has guided students to create physical and online exhibits of texts and artifacts.

Fondren uses various formats for instruction to maximize both access and specific relevance for our patrons. At the most general level, the Fondren 101 workshop gives first-year students the opportunity to visit the library's most important service points and navigate digital resources and search tools. More focused workshops, such as the DMC's classes on digital editing software, are offered in one or more sessions each semester, accompanied by online guides. Many library instruction sessions are designed for particular courses and projects in collaboration with faculty instructors. In addition, librarians maintain an array of online research guides (at libguides.rice.edu) and frequently asked questions (at library.rice.edu/faq), and perform a variety of outreach activities to increase awareness of our resources. Our flexibility and the variety of our expertise make us valuable for students in all areas and levels of inquiry.

II. Library Instruction Departments

The library offers instruction through several departments supplying expert guidance and established workshops in different areas of focus. All departments are open to collaboration with faculty and with other librarians to meet student needs with new workshops, consultations, and learning materials.

Digital Media Commons (DMC)

Contact: Jane Zhao: janezhao@rice.edu or 713-338-3696
http://library.rice.edu/dmc

The DMC offers a variety of instruction including customized training for interested Rice classes and groups, regular training to all Rice affiliates, walk-in or scheduled consultations, and online guides and video tutorials. These hands-on trainings and detailed training materials cover how to use and create digital resources such as digital video and audio, graphics and animations, posters, websites, and data visualization. Common elements include:

- Managing your citations with Zotero/EndNote
- Fundamentals of data visualization with Tableau
- Making an academic poster with PowerPoint
- Video editing with iMovie/Final Cut Pro/Premiere
- Different approaches to creating whiteboard animation videos
- Making a short video from start to finish
- Audio recording and editing with Audacity
- Authoring a Website with CampusPress
- Introduction to Photoshop
- Creating a digital illustration in Adobe Photoshop

- Creating a promotional Flyer in Adobe Illustrator
- Creating a portfolio in Adobe InDesign
- Creating motion graphics in Adobe After Effects
- Using Blender to create 3D model and animations

GIS/Data Center (GDC)

Contact: Kim Ricker: kr7@rice.edu or 713-348-5691
http://library.rice.edu/gdc

The GIS/Data Center offers customized instruction for interested Rice classes and a series of twenty-two short courses available to all Rice affiliates. These courses provide a basic introduction to geographic information systems; teach software-specific tasks for analysis and visualization of geographic data; or introduce the use of demographic data in GIS, like that from the U.S. census. Common elements include:

- Learning the fundamentals of GIS
- Discovering GIS concepts and applications in a wide variety of disciplines
- Using software tools for analysis
- Exploring and accessing data resources
- Creating GIS data
- Identifying underlying foundational information about data, such as the projection and how to choose the appropriate one
- Making decisions on how to format data for importing and exporting
- Manipulating data
- Lining up images, such as aerial photographs, site plans and diagrams, with other spatial data in ArcGIS (georeferencing)
- Evaluating geographic patterns and identifying statistically significant spatial clusters (hot spots) and outliers in the data

Kelley Center for Government Information, Data and Geospatial Services

Contact: Kathy Weimer: khw2@rice.edu or 713-348-6212
http://library.rice.edu/gov

Serving as a federal depository library for the 7th Congressional District of Texas and as a Patent and Trademark Resource Center, Fondren Library's Kelley Center for Government Information, Data and Geospatial Services provides free and effective public access to government information as well as short courses devoted to data of several types: government census and survey data (IPUMS), geospatial data (through digital historic maps), and data used in political and social research (ICPSR). In addition, the Kelley Center offers Patent and Trademark Resource Center (PTRC) classes which teach area inventors and entrepreneurs how to search the free patents and trademarks databases from the United States Patent and Trademark Office (USPTO). Students engineering new products or developing entrepreneurial

ventures could gain important real-world experience by learning to navigate these USPTO databases.

Topics of our classes include:

- Finding and analyzing social sciences data
- Finding and archiving research data with the Inter-university Consortium for Political and Social Research (ICPSR)
- Providing student resources for political and social research
- Integrating maps and concepts of spatial thinking into humanities and social sciences research and inquiry
- Customizing census data retrieval from IPUMS
- Understanding of the United States Patent Classification and Cooperative Patent Classification
- Searching strategies for patent and trademark
- Understanding of Trademark's Design Search Code and ID manual
- Checking patent and trademark application status

Reference

Contact: Joe Goetz: jeg3@rice.edu or 713-348-3892
http://library.rice.edu/reference

The Reference Department teaches the use of library resources for disciplinary research and associated information literacy skills. In addition to Fondren 101, an introductory tour and workshop for first-year students, Reference teaches many in-class workshops on course- and assignment-specific search skills and resources. In their capacity as subject specialists, reference librarians frequently consult with individual students performing advanced research for capstone projects. Along with workshops, reference librarians maintain the library's online FAQs and Research Guides. In particular, the Research Guides (http://libguides.rice.edu) offer detailed guidance on the best sources available in particular subjects; these guides can easily be adjusted and expanded to meet specific needs.

The Reference Department considers direct relevance to students' current projects to be a key element of instructional success; for this reason, most workshops are designed in collaboration with course instructors on a semester-by-semester basis. Common elements of workshops include:

- Accessing the most important library resources in the subject, for example, types of books, journals and various primary sources
- Search skills for key resources
- Qualities of peer-reviewed articles as distinguished from popular, trade and book sources
- Features of high-quality internet resources

Research Data Management Team

Contact: Lisa Spiro: lspiro@rice.edu or 713-348-2480
http://researchdata.rice.edu/

The Research Data Management Team offers training and consultation to help students and researchers learn how to find, organize, clean, store and share data. These hands-on workshops introduce participants to tools such as Open Refine and Open Science Framework as well as to best practices for managing data. In addition to teaching regular workshops, we will work with classes and research groups to offer customized training and consultation. Topics of our workshops include:

- Organizing and Sharing Data
- Finding, Accessing and Citing Data
- Storing, Backing Up and Archiving Data
- Cleaning Data with Open Refine
- Using Spreadsheets to Manage and Analyze Data

User Experience Office

Contact: fondrenuxoffice@rice.edu
http://library.rice.edu/ux

Though the main focus of the User Experience (UX) Office is testing Fondren Library's usability through various qualitative and quantitative methods, we also offer training classes in many related areas, along with those identified as areas of need from UX research.
These include:

- IRB Regulations and Human Subjects Research
- Setting Up Google Scholar Profiles
- Fast Classes (15-30 minute "work-arounds") such as:
    - Google Alerts
    - Scopus
    - Evernote
    - Ebooks
- UX Methodologies

Woodson Research Center

Contact: Norie Guthrie: slg4@rice.edu or 713-348-2563
http://library.rice.edu/woodson

The Woodson Research Center teaches how to use primary sources to enhance research and to create dynamic online exhibits displaying primary sources. We also work with faculty to select

relevant collections that can enrich student understanding of a topic. Archivists at the Woodson teach in-class workshops and work one-on-one with students. Common elements of workshops and one-on-one sessions include:

- Determining the differences between primary and secondary sources
- Teaching how to use our finding aids, leading to more independent research
- Analyzing the subjective nature of primary sources
- Methods for extracting information from primary sources
- Relating primary source archival examples to larger cultural themes
- Using primary sources to tell a story, whether written or visual
- Understanding how primary sources can be used to create digital humanities projects