Pedagogical materials related to the "Data Visualization & Management: the Basics" one-shot workshop, Konkiel S, Polley DE, and Marshall B (2013).

Learning Outcomes and Required Skills for data visualization-related literacy

Learning Outcome: Design effective data visualizations in order to provide new insights into a research question or communicate information to the viewer.

Skills Required: Apply Illinsky's four principles of data visualization. Use Google Refine to clean data in order to assure data quality. Use Sci2 to perform various types of analysis on data sets. Use Gephi and Voyant to visualize the data.

Assessment Measure: Critique visualizations according to rubric [need to update to include "colors"]. Rate self-confidence in using various tools to analyze and visualize data.

Learning Outcome: Find and select appropriate data that can be used in order to create a visualization that answers a particular research question.

Skills Required: Identify research question. Choose appropriate types and formats of data for topical, network, burst, and temporal analysis. Navigate to data sources. Download data in proper format. Analyze data.

Assessment Measure: Successful completion of questionnaire addressing skills needed to answer research question.

Learning Outcome: Understand how Cultures of Practice influence the way data may be collected, described, or formatted in order to align their own data management practices with those of their discipline.

Skills Required: Based on intended audience for visualization and source of data, identify Culture of Practice/discipline. Be able to access information on discipline's data collection standards [literature search], relevant metadata schema and controlled vocabularies [libraries website and DCC guide], and what tools and formats are common to particular disciplines [literature search].

Assessment Measure: Successful literature searches (and reading) for data collection and analysis methodologies. Successful access of disciplinary metadata schema.

Pedagogical materials related to the “Data Visualization & Management: the Basics” one-shot workshop, Konkiel S, Polley DE, and Marshall B (2013).

Learning Outcome: Find and save data to IU-supported research storage for both short- and long-term preservation in order to comply with data management mandates.

Skills Required: Identify best storage options for short- and long-term data storage. Successfully navigate to appropriate storage solutions, log in. Transfer data from local drives to cloud storage accounts.

Assessment Measure: Questionnaire

Learning Outcome: Handle data and data visualizations in a manner that demonstrates an understanding of ethical considerations surrounding data (including data storage, citation, and protection).

Skills Required: Cite data from other sources in visualizations and documentation. Decide which data to make available, based on sensitivity. Store data on appropriate technologies using safeguards, based on sensitivity. Create visualizations that accurately represent the source dataset (i.e. does not manipulate or skew results).

Assessment Measure: Questionnaire. [in a more in-depth workshop, have students create projects which are then reviewed and scored against a rubric after class ends]

Learning Outcome: Properly document and organize data and visualizations in order to prepare them for reuse.

Skills Required: Create documentation for others to reference when reusing data that describes methodology for finding, analyzing, and visualizing data. Cite data source and viz creator in viz caption(s). Organize and format data appropriately for future processing by tools.

Assessment Measure: Questionnaire. [in a more in-depth workshop, have students create projects which are then reviewed and scored against a rubric after class ends]