

## Mapping Learning Objectives to DIL Core Competencies

Handout related to the “Integrating Data Management Literacies with Data Visualization Instruction: A One-Shot Workshop” poster (S Konkiel, B Marshall & DE Polley)

DIL Core Competencies	Learning Outcome	Skills Required	Assessment Measure
Data Management and Organization  Introduction to Databases and Data Formats  Data Conversion and Interoperability	<b><i>Understand data management and organization concepts.</i></b>	Identify data types, define data and its lifecycle, and describe how data is used and reused in research. List reasons why data management and organization is important to researchers.	Related questions on incoming and outgoing questionnaires.
Data Visualization  Quality Assurance	<b><i>Design effective data visualizations.</i></b>	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 to visualize the data.	Critique visualizations according to rubric.
Introduction to Databases and Data Formats  Discovery and Acquisition of Data	<b><i>Find and select appropriate data—and apply proper analysis—to create a visualization that answers a particular research question.</i></b>	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	Successful completion of questionnaire addressing skills needed to answer research question.



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Data Analysis		data.	
Cultures of Practice Introduction to Databases and Data Formats	<b><i>Understand how cultures of practice influence the way data may be collected, described, or formatted.</i></b>	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].	Successful literature searches (and reading) for data collection and analysis methodologies. Successful access of disciplinary metadata schema.
Metadata Data Preservation	<b><i>Save data to IU-supported research storage for both short- and long-term storage.</i></b>	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.	Questionnaire.
Ethics (including citation of data) Data Preservation	<b><i>Handle data and data visualizations ethically.</i></b>	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).	Questionnaire.  [In a more in-depth workshop, one idea would be to have students create projects which are then reviewed and scored against a rubric after class ends.]



<p>Data Curation and Re-use</p> <p>Ethics (including citation of data)</p> <p>Data Management and Organization</p>	<p><b><i>Prepare data and visualizations for reuse.</i></b></p>	<p>Create documentation for others to reference when reusing data that describes methodology for finding, analyzing, and visualizing data. Cite data source and visualization creator in visualization caption(s). Organize and format data appropriately for future processing by tools.</p>	<p>Questionnaire.</p> <p>[In a more in-depth workshop, one idea would be to have students create projects which are then reviewed and scored against a rubric after class ends.]</p>
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