Teaching Objective | Facilitate learning of [selected] data information literacy (DIL) core competencies® by graduate students

Approach | Use outcomes-centered course design® to select effective teaching strategies for each of the DIL core competencies

Practical Considerations

Reality | The average student cannot remember most of the factual content of a lecture within 15 minutes after it ends.® It Takes Practice | Implementing data management best practices requires behavioral change. As such, it’s important to engage students in these behaviors throughout the learning experience.

Clarifying Terms

Data Management | Actions that contribute to effective storage, preservation and reuse of data and documentation throughout the research lifecycle.

Curriculum | a Greek, to guide the child. The method and practice of teaching, especially as an academic subject or theoretical concept; can be a profession, an art, or a method.

Pedagogy | a Latin, of the course. The subjects comprising of course study® may outline the skills, performances, attitudes & values pupils are expected to learn, including outcomes, descriptions of materials & a planned sequence that will be used to help pupils attain outcomes.

Teaching Strategy | A technique for successfully teaching a concept to a group of students.

Outcomes-Centered Course Design® | A course design process that begins with determining what you want your students to be able to do by the end of the course. Curriculum and teaching strategies are developed to support the desired outcomes.

Active Learning® | An approach to instruction in which students engage the material they study through reading, writing, talking, listening, and reflecting.

References


Acknowledgments

The conception and development of graduate coursework in research data management at OSU, and continues to be, a team effort. I gratefully acknowledge my colleagues at the Library: Shan Sutton, the AUL for Research & Scholarly Communication, and Michael Boock, the Head of the Center for Digital Scholarship & Services. I have enjoyed very productive and helpful conversations with Bob Papanik, the Assistant Director of the Center for Teaching and Learning.

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Table 1. Examples of how DIL core competencies® and learning outcomes can be linked with various teaching strategies. All of the teaching strategies listed are a form of active learning, which are intended to help students better retain the material compared with lecture alone.

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<tr>
<th>Core Competency</th>
<th>Learning Outcomes</th>
<th>Teaching Strategies</th>
<th>Strategy Description</th>
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</table>
| Data Types & Formats | Understands which data types are appropriate for answering different types of research questions.; Choose appropriate data format for a specific research action (e.g., sharing or preservation); audience. | One Minute Paper | Student writes down one of their mass research questions, provide a couple of questions for students who hasn’t defined their research question yet; ask students to match their question with appropriate data types; have a few report back to the class.
| Metadata & Data Description | Understands the concept of rationale for metadata. | Buzz Groups | Immediately following lecture topic: students compare notes about data/file formats; select one or two elements of something they learned from the other’s notes.
| Data Curation & Re-use | Recognizes that data may have value beyond the original purpose, to validate results or for use by others. Understands that curating data is a complex, often costly endeavor that is nonetheless vital to community-driven research. | Structured Controversy® | Group students randomly; each group visits an online repository or database; group evaluates the scope, quality, and overall level of advocacy of the metadata; results are reported back to the whole class.
| Discovery & Acquisition | Locates and utilizes disciplinary data repositories. | Cooperative Learning, Integrating Technology | Have students write a brief response to the question, “What obstacles might you encounter in sharing your data?”; ask them to report back to the whole class; responses are recorded to identify common themes.

References


