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Developing Good Data Management Habits Early in Academic Life: Data Literacy Education for Undergraduate Students

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Goals

The University of Iowa Libraries has been providing data literacy education and training for researchers, faculty and graduate students for almost two years. Due to an increasing number of undergraduates becoming actively involved in research and creative projects on campus, there is an increasing need to teach data literacy skills as well as expand undergraduates' knowledge of research beyond the library resources with which they are already familiar. In the fall semester of 2016, an engineering librarian worked with an instruction librarian on a pilot project of incorporating a data literacy module into his course *Library in Research Context*.

About *Library Research in Context*

Library Research in Context is a semester-long one-credit online course, offered in Spring semester and designed to introduce undergraduate students to research techniques and processes. The course covers seven two-week-long modules:

- ❖ Determining search concepts and a search strategy
- ❖ Boolean searching, filtering results and other search techniques
- ❖ University of Iowa Library tools and services
- ❖ Academic research and communication between scholars
- ❖ Evaluating sources
- ❖ Ethics, citing sources and copyright
- ❖ Data management

About Data Literacy Module

Considering that students who were enrolled in this course had different disciplinary background, we introduced research data management on a theoretical basis and assigned a graded, hands on project of describing the organization of a computer's root folder.

Required Readings

- ❖ Overview of Research Data Management in PowerPoint Slides
- ❖ University of Iowa Research Data Service Library Guide
<http://guides.lib.uiowa.edu/data>
- ❖ MANTRA (Research Data Management Training) Module of Organizing Data
<http://datalib.edina.ac.uk/mantra/organisingdata>
- ❖ Blog Article about Documenting Data <http://dataabinitio.com/?p=522>

Optional Reading

- ❖ Carroll MW (2015) Sharing Research Data and Intellectual Property Law: A Primer. PLoS Biol 13(8): e1002235.

Assignment

Create a hypothetical folder structure for a root folder on a computer and implement best practices for file naming and versioning conventions.

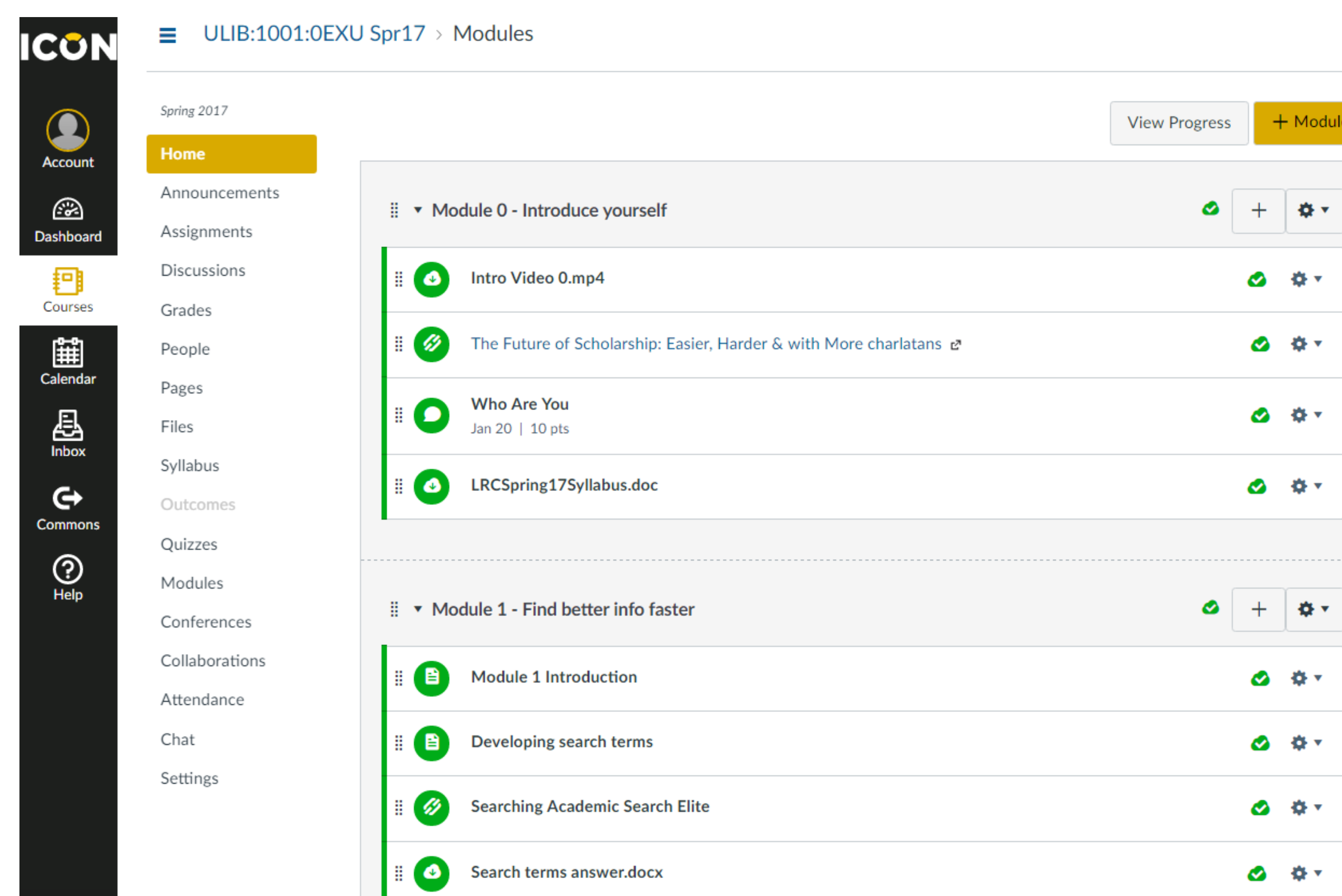


Image of *Library Research in Context* on Canvas

Outcomes

We perceived that students who took *Library Research in Context* would learn to use the library resources better. The data literacy module made students think about information and scholarly research outside traditional publishing channels. The folder structure assignment also gave an opportunity for them to see relationships between how information is organized and how it is accessed.

We conducted a survey to gather students' feedback. 5 out of 11 students responded the survey and gave mixed feedback. Most students liked the module.

- ❖ "Just the simplicity of how easy it can be to do something that will help [me] in the future."
- ❖ "The example was very easy to follow and easy to understand. Which makes it easy to incorporate into my own style of data management."
- ❖ "[I like] organizing files [the best]. It is most useful [to] me because my laptop is always massed up with many files and folder."
- ❖ "I like [Research Data Services Library Guide] and [MANTRA]...I love libraries being in them and the one that are online. I like [MANTRA] because I found it useful. I found some good databases to use in the future."
- ❖ "[The assignment is] very useful, it is good to have a system to organize information to save time in finding it."

But there were some suggestions and questions.

- ❖ "I thought [the assignment] partially unnecessary since this unit kind of covers what basic technology does every time we save a document. However it does show how clean a computer can be or how easy it can be to find a document if you organize well."
- ❖ "I will say choosing the right file names [I like least]. Because each people can have their own type of filenames which makes user feel comfortable."
- ❖ "I liked it, I was a little confused at first what to do and how to go about for this assignment..."

This valuable feedback will help us not only improve the module but also find better ways to teach data literacy for undergraduate students.