

Project Title

Reimagining Data Literacy as an Essential Component of the 21st Century Liberal
Arts Education

By:

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Total Funding Requested - \$7500

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1. Project Description

Data literacy is the ability to read, understand, create, and communicate data as information. Much like literacy as a general concept, data literacy focuses on the competencies involved in working with data. Data science in general is a fast growing multidisciplinary field involving the extraction of knowledge from data in various forms. Enormous amounts of structured and unstructured data are constantly being produced in a wide variety of fields, including business, education, social media, scientific research, economics, geography, music, film & television, the environment, sports, medicine, engineering, etc. According to Forbs, about 90% of all data in the world has been created in the last two years. With the fast growing volume of data and cloud computing technologies, data literacy has become a very essential skill across all domain knowledge. When it comes to the development of data literacy, there are four distinct yet integrative skills that are taught to students in an effort to increase comfort with data of all types. These skills, discussed in their logical progression, are: (1) knowing what data to collect; (2) collecting data; (3) analyzing data; (4) presenting & explaining data. Each of these skill sets is part of an integrative process that can be used to address questions and problems in nearly any field of study.

Acquiring this essential skill gives graduates in any field a competitive advantage in today's economy. However, the importance of data literacy is not given enough attention and often overlooked in liberal arts education. It is often considered a skill that only people in STEM and business disciplines need. In this project, a document that highlights the need for data literacy and commonly used data science methods and tools in different liberal arts fields will be prepared. Based on this document and further review of literature, a conference paper will be produced. Furthermore, this document will be used to organize the first data literacy workshop at Lincoln University in fall 2022 with the aim of initiating a discussion on this subject across disciplines within the university and beyond. This workshop will involve stockholders from all programs at Lincoln University (STEM and Non-STEM) to discuss the importance of infusing data literacy into liberal arts curriculum. Expected outcome of the workshop will be an input that supplements the ongoing efforts to develop an introductory data science general education (GenEd) course into the university curriculum.

2. Goals and Objectives of the Project

The goal of this project is to highlight and initiate a discussion on the need for the data literacy across disciplines in the liberal arts institutional setting such as Lincoln University.

Objectives

1. Compile a report/document on the need for data literacy in liberal arts and commonly used data science methods and tools.

2. Produce a review conference paper on data literacy in liberal arts education
3. Organize a data literacy workshop at LU to help produce a proposal that supplements the development of an introductory data science GenEd course

3. Project Timeframe

The first two objectives of this project will be conducted during summer months of June and July, 2022. The overall report and pertinent journal/conference paper will be completed by July 31, 2022. The third objective will be conducted before the end of fall 2022 term. The exact date and time for the workshop will be determined in coordination with CETL.

4. Enhancement of Teaching and Research at Lincoln University

By shining light on the importance of data literacy in our programs, this project will help us reimagine our curriculum in such a way that strengthen students' quantitative reasoning skills. The findings of this project will help as input in the future development of data science courses in the department of mathematical sciences that is currently under consideration. It also helps harness the multidisciplinary nature of data science to initiate discussion among faculty members on potential curriculum revision and research collaboration initiatives. The final document will be used by Lincoln student and faculty researchers to refer to the commonly used data science methods and analysis tools.

5. Measurement of the Project Success

The success of this project will be measured by:

1. The completion and submission of the final report as per the outlined timeline.
2. The preparation and submission of conference paper based on the project findings
3. Data literacy workshop organized at LU in collaboration with the department of mathematical sciences and CETL to produce a proposal that supplements the development of an introductory data science GenEd course

6. Sharing the Project Outcome

The project outcome will be shared through the following means:

1. The final report will be submitted to FRDC and office of faculty affairs and summary report will be submitted to CETL by the end of August, 2022.
2. The first department of mathematical sciences meeting of fall 2022.
3. Data literacy workshop. The date will be determined in collaboration with CETL
4. Conference paper

7. Budget

Two months' summer Salary: June and July, 2022.....\$7000

Workshop expenses (Refreshment)\$500

Total.....\$7,500