



Data visualization projects allow students to think critically, creatively, and with complexity while addressing significant a research question or topic of their choice. Students will approach problems in integrative ways from multiple perspectives, and will ethically acquire, evaluate, apply and communicate information in a visual format. A data visualization project experience will give students exposure to basic data information literacy practices, with opportunities to engage in reflective learning, analytic inquiry, problem solving, and creative communication.

[Instructional Technology](#) and the [Libraries](#) have developed [joint learning outcomes](#) that we want students to understand by the end of their data visualization project. These outcomes can be suited to many interdisciplinary options and styles, making data visualization projects an excellent fit within the Integrations Curriculum. While all can be integrated into a project, we recommend focusing on at least 2 or 3 of the following learning outcomes:

- **Authority is Constructed and Contextual**
- **Information Creation is a Process**
- **Information Has Value**
- **Research As Inquiry**
- **Searching as Strategic Exploration**
- **Scholarship is a Conversation**

Data visualization projects are divided into five interconnected sequential steps. Each step is designed to maximize students' ability to think critically about every aspect of their work.

Research ↔ **Analyze** ↔ **Design** ↔ **Review** ↔ **Share**

Research

- Students identify the problem(s) and try to form a research question and/or a thesis statement. They also work to identify and understand who the audience will be.
- Students conduct research using primary, secondary, and tertiary resources.
- Students determine the scope of their data needs and acquire the right data sets for their research question.

Analyze

- Students analyze, synthesize, and think about the data and information they found to address their research question/thesis statement.
- If necessary, students work to ensure that their data is clean, organized, and in a usable format.

Design

- Students load their data into Tableau and create dashboard visualizations, based on their research and analysis, and adjusting the scope as needed.

Review

- Students turn in a written brief summarizing their research, data analysis and visualization, and the conclusions they reached.
- Students turn in a draft of Tableau dashboard to a faculty teaching the course. The Instructional Technologist, Librarian and Faculty provide feedback on the draft dashboard.

Share

- Students share and present their dashboard and findings on the platform/venue determined by their Faculty.

Recommended minimum number of class sessions

- **Research** begins with a class session for at least 35 minutes
- **Design** begins with a class session for at least 55 minutes

Recommended number of staff involved in the process

- 1 Librarian
- 1 Instructional Technologist

Recommended tips and best practices

Based on our experience with data visualization assignments, below are our recommendations for the most successful outcomes.

- We recommend that students use this project as an artifact to add to their e-Portfolio. They can be shared on social network platforms or with a general audience.
- We recommend students create projects for a “general public” audience, to increase students’ engagement.
- Have students work in groups of 2 or 3. This fosters collaboration and will help ensure that each participant contributes to the project.
- Instructional Technology and the Libraries are committed to creating accessible content. We recommend that projects give consideration to accessible design principles.
- We recommend that students use their final data visualization as an artifact to add to their e-Portfolio. Visualizations can be shared on social network platforms or with a general audience.