

M.S. in Applied Data Science

IST 782: Applied Data Science Portfolio

Detailed Description

Revised: Jan 2023

Overview:

For your portfolio, choose 3 or more course projects (for courses taken during your program), which reflect the abilities specified in the program learning outcomes.

Background Rationale for the Portfolio:

The MS in Applied Data Science is a practitioner's degree - while the curriculum is founded upon firm theoretical underpinnings, the program is designed to be a professional program with a strong emphasis on the applications of data science to generate actionable insights.

Many of the courses taken within the Applied Data Science program involve projects that demonstrate a student's ability to apply the concepts of data science at an advanced level within a particular domain. However, such a single course deliverable does not necessarily demonstrate that you have achieved the advanced cognitive strategies required by the program overall.

The goal of the portfolio is to provide evidence that you have achieved the program learning outcomes, and equally important, the portfolio should also demonstrate how you have been able to synthesize the degree's diverse learning outcomes into an integrated set of useful skills.

In short, to show mastery of applied data science, you need to be able to demonstrate that you have been able to master each fundamental aspect of this discipline (i.e., the program learning outcomes), while also being able to demonstrate you can synthesize these individual outcomes to provide actionable insight to the appropriate stakeholders.

What is the Portfolio:

Conventional use of the term "portfolio" in education often describes a requirement to archive past assignments from courses as the degree progresses and then to turn over this archive as physical evidence of learning in each course. Such activities are primarily recordkeeping functions - not usually required to be acts of overall reflection and synthesis.

However, in this program, the intent of the portfolio is for you to retrospectively reflect on how each course became a step toward your present abilities, in light of the program learning outcomes. While individual assignment deliverables will be described in the portfolio, a key part of the portfolio is an **analysis of learning that links your projects to the key concepts of the program learning outcomes and explains how your project deliverables have demonstrated your mastery of these program learning outcomes.**

Reviewing the Program Learning Goals:

As an interdisciplinary program, the master's in Applied Data Science provides students the opportunity to learn in a broad range of areas related to data science. Successful students in our program will be able to:

1. Collect, store, and access data by identifying and leveraging applicable technologies
2. Create actionable insight across a range of contexts (e.g. societal, business, political), using data and the full data science life cycle
3. Apply visualization and predictive models to help generate actionable insight
4. Use programming languages such as R and Python to support the generation of actionable insight
5. Communicate insights gained via visualization and analytics to a broad range of audiences (including project sponsors and technical team leads)
6. Apply ethics in the development, use and evaluation of data and predictive models (e.g., fairness, bias, transparency, privacy)

Portfolio Deliverables:

1. A **written paper** that contains:
 - a. A description of each learning outcome – providing the learning outcome text and then explaining the outcome in your own words.
 - b. A description of 3 (or more) projects. An internship project can be used if there are more than 3 projects described. The description should include:
 - Which course did you do the project (or internship)
 - What were the goals of the project

- What technologies were used
 - What actionable insight was generated
 - For a group project, what was your specific contribution to the project
 - Which overall program learning outcomes were demonstrated via the project.
- c. An overall synthesis providing:
- A summary of how you achieved the all program learning outcomes
 - Reflections about the program
- d. Note that there is no length requirement for the paper; it needs to be long enough to link all learning outcomes to the selected projects that have been completed during your program of study.
2. **Recorded Video Presentation:**
- a. A Video presenting a summary of the written paper (ex. zoom or video with powerpoint)
 - b. The presentation should be 10-20 minutes
 - c. The presentation should be targeted to people who are **not** data science experts.
3. **Web Site / ePortfolio** (an alternative to the recorded video presentation)
The web site should have the following sections (or web pages)
- a. Overview that includes
 - A description of the program learning outcomes
 - A high-level description of each of project included in the portfolio
 - An explanation of how you achieved the program learning outcomes (explaining which projects demonstrated which program learning outcomes)
 - b. **Project Descriptions:** A more detailed description of each project
 - c. **Blog post:** Around 3,000 words, which covers topics such as:
 - What did you expect to learn in the program?
 - What did you learn in the program
 - At a high level, for each learning outcome, how did you achieve that learning outcome
 - Pick at least 3 projects – briefly describe each, and how each project contributed to your education
 - Did you do an internship, iConsult or projects outside the classroom? If so, briefly describe how it contributed to your education
 - What was your favorite class? Why was it your favorite class?
 - What was the best part of the program?
 - What was some of the biggest surprises
 - d. Hints on creating a web site:
 - <https://medium.com/coburb/building-an-urban-planning-portfolio-in-10-minutes-with-airtable-and-pory-fe8f4f37ca23>
 - <https://edublogs.org/>
 - <https://www.portfoliogen.com/>
 - <https://sites.google.com/view/togetherlearning/learn/digitalliteracy/portfolios>

Note: Students are required to do either (2: a recorded presentation) or (3: a Web site)

Due Dates:

- a. **DRAFT:** Written Paper – March 1, 2023
(in ‘Submission I: Word Document – Draft’)
- b. **DECISION:** Video Presentation or Web Site (or both) - March 1, 2023
(in the draft paper)
- c. **DRAFT:** Web Site (if doing the web site) – March 15, 2023
(in ‘Submission II: Submission II: Slide Deck (PPT)’)
- d. **FINAL VERSION:** Written Paper – March 21, 2023
(in ‘Submission I: Word Document’)
- e. **FINAL VERSION:** VIDEO Presentation or Web Site – March 28, 2023
(in ‘Submission III: Video Presentation of Slides’)