Course Title: Data Visualization with Tableau

Learning Objectives:

- Explore data visualization through Tableau UI components and various ways to establish data connections.
- Understand the importance of Visual Analytics and explore various charts, features, and techniques.
- Gain proficiency in basic calculations such as Numeric, String Manipulation, Date Function, Logical, and Aggregate.
- Get introduced to Table Calculations and Level Of Detail (LOD) expressions.
- Learn to plot various advanced charts in Tableau Desktop.
- Build Dashboards and Stories within Tableau.

Module 1: Introduction to Tableau

- **Welcome & Introduction:** Get to know the instructor, course format, and learning outcomes.
- **What is Data Visualization?** Explore the power of data storytelling and its applications.
- **Tableau Overview and Features:** Dive into the interface and capabilities of Tableau Desktop.
- **Downloading & Installing Tableau:** Set up your environment for success.
- **Connecting to Data Sources:** Learn to import various data formats and establish connections.

Module 2: Data Transformation & Cleaning

- **Cleaning & Manipulating Data:** Understand the importance of data hygiene and cleaning techniques.
- **Sorting, Filtering, & Pivoting:** Organize your data for effective exploration and analysis.
- **Calculated Fields & Functions:** Expand your analytical power with custom calculations.
- **Sets & Groups:** Discover advanced data organization and aggregation tools.

Module 3: Creating Basic Visualizations

- Create Column Charts
- Create Line Charts
- Create Pie Charts
- Create Area Fill Charts
- Create Treemaps

Module 4: Creating Dashboards

- Creating a Dashboard
- Arrange and Resize Dashboard elements

Module 5: Mapping Geographic Data

- Creating a Basic Map
- Add and Remove Map Layers
- Distance Measuring tools
- Pan and Scan
- Custom regions

Module 6: Modifying Dashboard

- Replace Worksheets
- Define a Filter Action
- Define Parameter Action
- Update Dashboard

Module 7: Final Project & Review

- **Final Project:** Apply your learned skills to a culminating project, showcasing your Tableau expertise.

Assessment:

- **Introductory Video (5%)**
- **Module Assignments & Exercises (15% per module):** Apply your skills through practical assignments and exercises. Modules 2 to 6
- **Final Project (15%):** Showcase your Tableau mastery through a final project with peer feedback.
- **Active Participation (5%):** Engage in discussions, provide feedback, and actively participate in the learning process.

Resources:

- **Tableau Desktop Software:** Students will need access to Tableau Desktop software for assignments.
- **Canvas Course Materials:** Videos, tutorials, readings, and other resources will be available in Canvas modules.

- **Instructor Support:** The instructor will be available through Canvas messages, Zoom office hours, and email.

Learning Format:

- Mix of independent and collaborative work
- Applied learning with real-time and asynchronous activities