**Data Management, Data Modeling, Data Analytics Data Visualization**

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| **Professor’s Name**: | Mauricio Featherman, Ph.D. (2002 graduate of the UH CIS Ph.D. program) |
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| **Professor Webpage:** | <https://faculty.business.wsu.edu/featherman/> |
| **Office Hours:** | Weekdays by appointment and starting 5:30 pm (one hour before class begins) |

**Course webpage:** <https://faculty.business.wsu.edu/featherman/data-modeling-short-course/>

**Course Overview** This course is designed to equip students with knowledge, technical skills, and industry-perspective necessary to perform data-driven decision making. Students of all professions and skill levels are welcome. Professionals in each major discipline (Accounting, Marketing, Management, Supply Chain, etc.) can benefit from improving their data access and analysis skills. This course teaches how to capture, package, investigate and present data to enable data driven decision-making, and improved business performance. This course greatly improves the technical and problem-solving abilities of the course participants.

Good decision makers should be able to recognize and formulate decision problems, represent the essential structure of the decision situation, and analyze the problem using appropriate tools and techniques in order to recommend various courses of action. In this course you will learn how to conduct data management, analysis and visualization using a variety of modern analytical tools and techniques. More specifically we will use the 2013 or 2016 version of Microsoft Excel and Access database, and PowerBI desktop. The course is primarily application and hands-on oriented so that course participants can use the content they learn quickly in their work processes. Course participants learn the key decision making concepts in common scenarios (production, inventory, sales, etc.) by daily analysis of provided datasets. Participants will solve business problems in a fact-based, data-driven and iterative manner.

**Course Objectives -** At the end of the class, students should be able to:

1. Define and structure a decision problem.

2. Identify external and internal organizational sources of data available for decision making.

3. Transform data into decisions using spreadsheet engineering, modeling, and analysis skills.

4. Explore, describe, and summarize data using statistical and visualization techniques.

5. Apply analytical tools and techniques to generate, evaluate and support courses of action based on data-driven analysis.

6. Become proficient in designing tabular data models using Excel’s PowerPivot, and Power BI

8. Become proficient in reporting and data visualization using Powerview, Pivot tables and pivot charts, and Power BI.

9. Demonstrations of SQLServer Management and Reporting Services and Tableau are provided

10. Gain an industry perspective by performing a case study.

**Technology utilized** - The course will provide a guided dive deep into Microsoft's current state-of-the-art BI technology stack. Small alterations are possible based on available technology.

1) We will review SQLServer databases and database management systems. You will receive a demonstration of views and T-SQL using SQLServer Management Studio (SSMS)

2) We will use Microsoft Access to learn database design and modeling principals

3) We will query data inside Access

4) We will create interactive management reports and dashboards using Excel’s PowerView, Pivotcharts, and PowerBI

**Course Format** – Readings are assigned, to explain the technologies. Class time is primarily devoted to hands-on walk-throughs of the technology. The course instructor has completed considerable training which allows the live demonstration and guided experience using many different technologies. The instructor is very patient and understanding of different skill levels and learning abilities. In-class experiences are able to be reviewed again via online Camtasia videos, and sample projects. The instructor will be available daily for assistance.

**Course Requirements**

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| Group Presentation of industry Use-case | 10% of grade |
| Hands-on Assignments (8) | 60% of grade |
| Individual or Group Final project | 30% of grade |

**Hands-on assignments** - A series of hands-on projects are assigned using Microsoft technologies. These assignments offer the student the ability to practice and perfect their data analysis skills, and mastery over data. The course instructor will be available on campus daily to provide assistance as necessary to individuals, or small groups of students. Please work with a classmate. (60%)

**Presentation of Industry Use-case** - Your hands-on experience and understanding of the technology is extended by inclusion of management cases. You will be given a set of cases to choose from, and you are asked to choose and present two short cases. Each case is 5 to 8 pages and discuss the implementation and usage of a Business Intelligence or analytics tool. This exposure to use-cases provides important managerial perspective. You are asked to verbally present your analysis. A presentation rather than a write-up is required. (10%)

**Final project** – By the end of the class, you will become empowered with new technical skills and perspectives. You will be given a dataset and a problem and asked to write up your analysis of the problem and your recommendation actions. You are asked to turn in a report after exploring the data, and analyzing, summarizing and visualizing the business problem. To turn the data into improved managerial decisions, you are asked to generate plausible solutions, provide recommendations regarding the various courses of action while keeping tradeoffs, competing interests, and uncertainty and risks in mind.

So create a dashboard that helps you with your work matters, or perhaps write up your justification for a new implementation of business intelligence tools You may work alone or in a group of 2 or 3. Presentation required on last day of class (30%)