CANTON, NEW YORK

MASTER SYLLABUS

COURSE NUMBER – COURSE NAME
CITA 371 - Working with Data Visualization Tools

Created by: Thomas Burl

Updated by:

School

Department:

Semester/Year:

A. **TITLE**: Working withData Visualization Tools

B. **COURSE NUMBER:** CITA

C. **CREDIT HOURS:** (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)

 # Credit Hours: 3
 # Lecture Hours: 3 per week
 # Lab Hours: 0 per week
   Other: 0 per week

Course Length: 15 Weeks

D. **WRITING INTENSIVE COURSE**: Yes ☐   No ☒

E. **GER CATEGORY: None:** ☒   **Yes:** GER
If course satisfies more than one: GER

F. **SEMESTER(S) OFFERED: Fall** ☐   **Spring** ☐   **Fall & Spring** ☒

G. **COURSE DESCRIPTION:**

The Power BI Desktop course provides a foundation to work with this handy data visualization tool. Data visualization allows us to see insight into our data that would not be visible by just looking at the numbers – it will enable us to see trends and patterns for better decision making. Perfect data does not always exist to support your data visualizations – data will need massaging. The Power Query editor uses the M language to extract, transform, and load data for use in the Power BI Desktop. The Power Query editor will allow you to shape data from various sources to power your data visualizations. Data can come from multiple sources and be fragmented. The Power Editor allows you to pull data from numerous data sources to produce a unified data set to perform data analysis. Data sources can be merged and stacked together.

H. **PRE-REQUISITES: None** ☐   **Yes** ☒   **If yes, list below:**

CITA 110 or CITA 163 or permission of instructor

CO-REQUISITES: None ☒   **Yes** ☐   **If yes, list below:**

I. STUDENT LEARNING OUTCOMES: (*see key below*)

By the end of this course, the student will be able to:

Course Student Learning Outcome [SLO]	Program Student Learning Outcome [PSLO]	GER [If Applicable]	ISLO & SUBSETS	
a. Install and Setup Visualization Software	3. Demonstrate a solid understanding of the methodologies and foundations of IT		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
b. Connect to a variety of data sources	3. Demonstrate a solid understanding of the methodologies and foundations of IT		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
c. Create data visualizations and dashboards	3. Demonstrate a solid understanding of the methodologies and foundations of IT		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
d. Transform Data Sets	3. Demonstrate a solid understanding of the methodologies and foundations of IT		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
e. Merge and stack datasets	3. Demonstrate a solid understanding of the methodologies and foundations of IT		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
d. Implement an "Other" column strategy	3. Demonstrate a solid understanding of the methodologies and foundations of IT		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
e. Work individually or in teams to transform datasets into dashboard	2. Identify issues and collaborate on solutions concerning IT in an effective and professional manner		4-Soc Respons ISLO ISLO	T Subsets Subsets Subsets
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			ISLO	Subsets
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KEY	Institutional Student Learning Outcomes [ISLO 1 – 5]
ISLO #	**ISLO & Subsets**
1	**Communication Skills** Oral [O], Written [W]
2	**Critical Thinking** *Critical Analysis [CA], Inquiry & Analysis [IA], Problem Solving [PS]*
3	**Foundational Skills** *Information Management [IM], Quantitative Lit,/Reasoning [QTR]*
4	**Social Responsibility** *Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]*
5	**Industry, Professional, Discipline Specific Knowledge and Skills**

*Include program objectives if applicable. Please consult with Program Coordinator

J. **<u>APPLIED LEARNING COMPONENT:</u>**   Yes ☒   No ☐

If YES, select one or more of the following categories:

☒ Classroom/Lab
☐ Internship
☐ Clinical Placement
☐ Practicum
☐ Service Learning
☐ Community Service

☐ Civic Engagement
☐ Creative Works/Senior Project
☐ Research
☐ Entrepreneurship
   (program, class, project)

K.   **TEXTS:**

Pro Power BI Desktop: Self-Service Anal;ytics and Data Visualization for the Power User
(3rd Edition)
Aspin, Adam
 ISBN 978-1-4842-5762-3e

L.   **REFERENCES:**

Non

M.   **EQUIPMENT: None** ☐   **Needed:** Classroom Lab with Power BI Desktop -- SQL Server

N.   **GRADING METHOD:** A-F

O.   **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

Quizzes, Exams, and Assessments

P.   **DETAILED COURSE OUTLINE:**

Part 01: Power BI Desktop Fundamentals
Topics:
•   **Installing the Power BI Desktop application**
•   **Connecting to a data source**
•   **Creating data visuals**
•   **Applying data filters**
•   **Building Dashboards**

Part 02: Power BI Desktop Intermediate
•   **Connecting to a variety of data sources**
•   **Managing rows and columns**
•   **Transforming text, numerical, and data columns**
•   **Adding new columns**
•   **Performing data cleanup**
•   **Applying filters**
Part 03: Power BI Desktop Advanced
•   **Merging data**
•   **Stacking data for simple data sources**
•   **Stacking data for complex data sources**
•   **Creating the classic "other" column development strategies – static and dynamic implementation**
•   **Exploring the M language**

Q.   **LABORATORY OUTLINE: None** ☒ **Yes** ☐