IT IS 5433 General Course Information

Credit Weight: 0.5 credits

Prerequisites: Precludes additional credit for ITIS 5432.
Prerequisite(s): ITIS 5431 and BUSI 5801 or equivalent.

Course Description

Introduction of the role of data mining in current business organizational strategy. This course will provide an overview of the different Analytics approaches by situating data mining in organizational and commercial contexts. Students will be expected to understand and communicate the business value of business analytics and the merits of different analytical approaches.

The students will also participate in exercises in data preparation and profiling and hands-on predictive modeling using a variety of data analytic techniques and practices using SAS Visual Statistics, Visual Analytics, and VDMML

Course Rationale

The purpose of the Analytic methods course is to expose the students to different analytic methods for predictive models. Students will use a Big Data Analytics platform to make data ready for analysis and predict continuous and categorical data by using traditional statistical models such as logistical regression and machine learning models such as decision trees and neural networks. Students will then follow an analytical governance framework by completing model ops processes.

Course Learning Objectives

After successfully completing this course, you will be able to:

CO1: Explain the different types of analytics methods and how they are used in a commercial context.

CO2: Describe the steps in the analytical lifecycle that Data Scientists typically navigate when creating analytic models.

CO3: Explain the architecture and core components of the big data analytics platform.

CO4: Write computer programs to manipulate, profile, clean, transform data to be ready for use in analytic projects.

CO5: Create traditional statistical and train machine learning models using data sets and the analytics platform.

CO6: Explain the results from the different modeling activities.

CO7: Deploy models generated from modeling activities using model ops framework.

Course Schedule

Please regularly check and log into Brightspace to review new content. Configure your personal notifications to opt into course announcements so that they will be emailed to your Carleton email address.

Module	Topics	Materials	Deliverable
1	**MO1**: Compare different types of analytic methods. (C01) **M02:** Explain the analytics lifecycle. (C02) **MO3:** Create programs to manipulate and integrate data. (C04) **MO4:** Describe at a high level the analytics platform environment and components. (C03)	SAS® Visual Statistics in SAS® Viya®: Interactive Model Building Course notes 1.1-1.41 **(MO1-MO3)** Access to SAS Viya for Learners platform (MO4)	Quiz1 SAS PROG1 online course certificate (MO3) Due Sunday 11:59 pm EDT of Module 1
2	**MO1**: Ingest data into the Analytics platform. (CO4) **MO2**: Assess data for use in models and perform data transformation. (CO4) **M03**: Create linear regression models. (CO5) **MO4:** Describe the results of the linear regression. (CO6)	SAS® Visual Statistics in SAS® Viya®: Interactive Model Building Course notes 3.1-3.86 **(MO2-MO4)** Data Management video (MO1)	Quiz1 **(MO2-MO4)** Assignment 1 **(MO2-MO4)** Due Sunday 11:59 pm EDT of Module 3
3	**MO1** Describe the benefits and limitations of using logistical regression models and how they would be used	SAS VTA User Guide Chapt. 5 (Up to page 45 **(MO2)** Writing Concept rules in SAS Visual Text Analytics (21:30) **(MO2)**	Quiz2 (MO1-MO4) Assignment 2 MO2-MO4)

Module	Topics	Materials	Deliverable
	in the organizational context. (CO1) **MO2:** Perform data transformation to make data to ready for modeling. (CO4) **M03**: Create logistical regression models on cleansed dataset. (CO5) **MO4:** Describe the results of the logistical regressions. (CO6) information from Adverse Drug Effect Data Set **(CO3)**	SAS® Visual Statistics in SAS® Viya®: Interactive Model Building Course notes 4.43 & 4.53 **(MO2 &MO3) (MO1 MO2)** **Logistical Regression video**	Due Sunday 11:59 pm EDT of Module 3
4	**MO1:** Describe the benefits and limitations of using tree models and how they would be used in the organizational context. (CO1) **M02**: Create decision tree and random forest models on using analytic platform. (CO5) **MO3:** Describe the results of the tree models. (CO6)	SAS® Visual Statistics in SAS® Viya®: Interactive Model Building Course notes Practice 4.87 Machine Learning Using SAS Viya 3.52 & 3.74 (M01&MO2&MO3) Decision Tree Vid eo	Quiz3 (MO1-MO3) Assignment 3 Due Sunday 11:59 pm EDT of Module 4
5	**MO1** Describe the benefits and limitations of using neural network models and how they would be used in the organizational context. (CO1) **M02:** Create neural network model using the analytics platform. (CO5) **MO3:** Describe the results of neural models. (CO6)	Machine Learning Using SAS® Viya 4.1-4.57 exercises 4.54 **(MO1-MO3)** **Intro to neural network models using VDMML**	Quiz4 MO1-MO3) Assignment 4 (MO1-MO3) Due Sunday 11:59 pm EDT of Module 5
6	**MO1:** Explain other machine learning algorithms and how to create them in analytics platform (CO1). **M02:** Create Random Forest and SVM models on cleansed dataset and interpret results (CO5).	Machine Learning Using SAS® Viya Exercises 2.56 **(MO1&MO2)**	
7	**MO1:** Describe the model ops process and how it integrates with an analytic lifecycle (CO2). **MO2:** Register pipelines (models) in Model Manager as part of the model ops process. (CO7). **MO3:** Deploy model score code on new data. (CO7)	Machine Learning Using SAS® Viya 6.1-6,35 **(MO2&MO3)** Model Manager video **(MO1)**	Quiz5 Due Sunday 11:59 pm EDT of Module 7

Learning Materials

Textbook

Articles, course notes, and manuals will be provided for the course

Other Resources

Students will be using the SAS Viya for Learners platform for analysis. A video containing instructions on how to create an account and access the platform is provided in Brightspace.

Grading Scheme

Activity	Scored Out of	Percent of Total Grade
Quiz 1	6	6%
Quiz 2	6	6%
Quiz 3	6	6%
Quiz 4	6	6%
Quiz 5	6	6%
Discussion 2 X Resource Links	5	5%