

UK LEVEL: 6
UK CREDITS: 15

(Updated: Fall 2025)

PREREQUISITES:	CS 3051 Business Driven Technology or CS 1070 Introduction to Information Systems or ITC1070 Information Technology Fundamentals CS 2179 Business Information Systems										
CATALOGUE DESCRIPTION:	Data exploitation for decision making purposes: Data Management for Decision Support, Business Intelligence, Business Analytics, Data Mining/Machine Learning, Reporting, Forecasting.										
RATIONALE:	This course focuses on the three areas of data exploitation for decision making purposes i.e. data management, business intelligence and business analytics, which are all taught through business case studies.										
LEARNING OUTCOMES:	As a result of taking this course, the student should be able to: 1. Demonstrate ability to process, manage and report data using appropriate software tools 2. Apply data mining/machine learning techniques to real - life business problems using appropriate software tools 3. Evaluate and explore big data to find patterns, trends and associations.										
METHOD OF TEACHING AND LEARNING:	In congruence with the learning and teaching strategy of the College, the following tools/activities are used: <ul style="list-style-type: none">• Lectures and class discussions. Laboratory practical sessions and problem solving.• Office hours held by the instructor to provide further assistance to students.• Use of the Blackboard Learning platform to further support communication, by posting lecture notes, assignment instruction, timely announcements, and online submission of assignments.										
ASSESSMENT:	<div>Summative:<table><tr><td>First Assessment - Midterm Project</td><td>40%</td><td>Exploit (access, manage, process and report) real world data and answer business questions</td></tr><tr><td>Final Assessment – Written and lab examination</td><td>60%</td><td>Answers to questions and data analysis problems (1,000-1,200 words)</td></tr></table></div> <div>Formative:<table><tr><td>Business case problems – team work</td><td>0%</td></tr></table></div> <p>The formative assessment(s) aim to prepare students for the summative ones.</p> <p>The First Assessment tests Learning Outcome 1. The Final Assessment tests Learning Outcomes 2 and 3.</p>			First Assessment - Midterm Project	40%	Exploit (access, manage, process and report) real world data and answer business questions	Final Assessment – Written and lab examination	60%	Answers to questions and data analysis problems (1,000-1,200 words)	Business case problems – team work	0%
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Final Assessment – Written and lab examination	60%	Answers to questions and data analysis problems (1,000-1,200 words)									
Business case problems – team work	0%										

	<p>Students are required to resit failed assessments in this module.</p> <p>(Guidelines and assessment rubrics are distributed on the first day of classes along with the course outline).</p>
INDICATIVE READING:	<p>REQUIRED READING:</p> <ul style="list-style-type: none"> • Course notes provided by the instructor. • Syphus, S., & Bell, R. (2009). SAS Enterprise Guide 1: Querying and Reporting (Course Notes): Stacey Syphus and Richard Bell: 9781607640417: SAS Institute Inc. • Christie, P. (2017). Applied Analytics Using SAS Enterprise Miner Course Notes: SAS Institute Inc.: 9781635261967: SAS Institute Inc. • Carlos Pinheiro et al. 2019. Machine Learning Using SAS Viya. Cary: SAS Institute Inc. <p>RECOMMENDED READING:</p> <ul style="list-style-type: none"> • Shmueli, G., Bruce, P. C., Gedeck, P., & Patel, N. R. (2019). <i>Data Mining for Business Analytics: Concepts, Techniques, and Applications in Python</i> (5th ed.). John Wiley & Sons. • Shmueli, G., Bruce, P. C., Stephens, M. L., Muralidhara, A., & Patel, N. R. (2020). <i>Data Mining for Business Analytics: Concepts, Techniques, and Applications in JMP Pro</i> (2nd ed.). John Wiley & Sons. • Dinov, I. D. (2023). <i>Data Science and Predictive Analytics: Biomedical and Health Applications Using R</i> (2nd ed.). Springer. • Kasem, M. S. E., Aly, A. A. A., ElGamal, S. A., & Hassan, E. M. (2023). <i>Customer Profiling, Segmentation, and Sales Prediction using AI in Direct Marketing</i>. arXiv preprint arXiv:2302.01786. • M., Sri Darshan, & others. (2024). <i>Integrating Data Mining and Predictive Modeling Techniques for Enhanced Retail Optimization</i>. arXiv preprint arXiv:2409.19248.
INDICATIVE MATERIAL: (e.g. audiovisual, digital material, etc.)	<p>REQUIRED MATERIAL: N/A</p> <p>RECOMMENDED MATERIAL: N/A</p>
COMMUNICATION REQUIREMENTS:	Use of appropriate academic conventions as applicable in oral and written communications.
SOFTWARE REQUIREMENTS:	<p>MS Office and Blackboard CMS</p> <p>SAS Enterprise Guide, SAS Viya, SAS Forecast Studio (web-based)</p>
WWW RESOURCES:	<p>http://www.dataminingapps.com/ https://www.sas.com/en_us/learn/academic-programs/resources/free-sas-e-learning.html</p> <p>http://support.sas.com/documentation/onlinedoc/guide/index.html</p> <p>http://support.sas.com/documentation/onlinedoc/va/index.html</p> <p>http://support.sas.com/documentation/onlinedoc/miner/index.html</p>

<p>INDICATIVE CONTENT:</p>	<p>1. Introduction to Data Driven Decision Making.</p> <p>2. Access, Management, Processing and Reporting of Data</p> <p>2.1. Overview of Enterprise Guide software.</p> <p>2.2. Access data form various sources such as text files, Excel workbooks and databases.</p> <p>2.3. Create queries using the graphical user interface of the software.</p> <p>2.4. Create reports such as graphs and summary tables.</p> <p>2.5. Export reports in various formats.</p> <p>3. Data Mining/Machine Learning: Predictive Analytics and Pattern Discovery Using SAS Visual Data Mining and Machine Learning on SAS Viya</p> <p>3.1. Introduction to Data Mining/Machine Learning.</p> <p>3.2. Pattern Discovery: clustering, association rules</p> <p>3.3. Predictive Analytics</p> <p>3.4. Case studies using Enterprise Miner</p> <p>4. Demand Forecasting in Practice Using Forecast Studio</p> <p>4.1. Fundamental issues about demand driven forecasting</p> <p>4.2. Introduction to quantitative forecasting</p> <p>4.3. Case studies using Forecast Studio</p>
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