

**Data Analytics for Business Decisions (CBM204)**

**Module Handbook 2021/22:**

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**Module Coordinator:**

**Name: Dr Ebuka Ibeke**

**Tel: 263564**

**E-mail: e.ibeke@rgu.ac.uk**

**FACULTY OF MANAGEMENT**

**THE ROBERT GORDON UNIVERSITY**

**Robert Gordon University**

**School of Creative and Cultural Business**

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| **Session:** | **2021-22** | **Semester:** | **1** |

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| **Module Number:** | **CBM204** |
| **Module Title:** | **Data Analytics for Business Decisions** |
| **CW (e.g., C1, C2, C3):** | **C1** |
| **Sub deadline:** | **9th November 2021 @13:00** |
| **Module Co-ord:** | **Dr Ebuka Ibeke** |

**COURSEWORK DETAILS (INDIVIDUAL PORTFOLIO ASSESSMENT)**

Data-driven decision making is a guide that enables businesses to make strategic and informed business decisions. Businesses more than ever strive to be more objective and make data-driven decisions not just to have a competitive edge but also for survival. It is therefore important for organisations to build the skills to identify challenges, spot opportunities, and adapt swiftly.

You will use **Alteryx** to mine actual data for a problem of your interest. The problem could be from your current work, something of interest to the school, or any data-driven problem you wish to solve and can source the data free from the web (e.g. data from UCI Machine Learning Repository - <https://archive.ics.uci.edu/ml/index.php>, Kaggle.com), etc. There are several types of analytics we’ll discuss in this module, however, for this assessment, you can either focus on **Predictive Analytics, Clustering & Segmentation, or Prescriptive Analytics**. We will discuss different scenarios of these types of analytics in class.

You will design the data analytics task, mine the data and describe the result. Your analysis of the data and results need not be at par with actual industrial results in your chosen area of interest as the aim of this task is to give you a real hands-on experience for what you have learned in this course.

Assume you have been employed as an analyst by a company that wants to understand the ultra-modern approach for applying and/or using data analytics for the task in question. **You need to review what has been done on your problem to date**. It will be great if your idea is novel. However, it is more important to have a well-developed idea (within the scope of what’s discussed in class).

The cross-industrial standard process for data mining (CRISP-DM) methodology provides a structured approach and sequence of events for planning a data mining project (this is the fundamental of this course and will be extensively discussed in class). Your research and write-up should be structured using the CRISP-DM process (see the coursework information below). You need to discuss the problem and the problem domain, review related work or existing solutions to the problem if any have been proposed or documented. If for any reason your approach does not linearly progress through the steps, this needs to be reflected in your analysis. You should interact with me as you develop your initial idea up to the write-up stage as a data or business analyst would interact with an organisation during a project. You need to employ your prior experience, skills developed within this course and your imagination to bridge the gap between the materials and data available and what you could potentially find out by interacting with a client organisation.

**Optional date to keep in mind**:

**30/09/2021**: Start thinking about the problem you wish to solve and gathering necessary information (including data)

**Mandatory documents and dates**:

**8/10/2021 (not assessed)**: You need to have a 1-page proposal for your project. This should include detail of your ideas about the exact business problem, what precisely is the data mining problem? What data would you use to solve this problem? What features would be useful in solving this problem?

**9/11/2021 (Assessment Report)**: The report should include each step of the CRISP-DM stages (detailed below) in their order. You may wish to have corresponding sections for each stage; this is not entirely necessary if the discussion for each stage can be easily found in the report. Remember to label and discuss any tables or graphs in your report and provide citations and bibliography for any external resource used. **You also need to submit your Alteryx workflow(s)**. Be as precise as possible. **The report should be 2,300 (+/- 10%) words and should include tables, figures, and charts. The word count excludes title pages, table of contents, lists of tables and figures, glossary, reference lists and any appendices you may want to add.**

**COURSEWORK INFORMATION (FINAL PROJECT GRADE SHEET - 100% of mark)**

[Note: Your project should aim to be deep and comprehensive and should cover each of the phases of the CRISP-DM methodology listed below. Marks will be awarded based on how exceptional your treatment of the points is. Grading is partially comparative: even with no flaws, a relatively light treatment will receive fewer points than a more comprehensive one. Overall, your writing style and ability to communicate ideas/points is crucial.]

Your introduction should give a general overview of the problem area (Predictive Analytics, Clustering & Segmentation, or Prescriptive Analytics) and review some of the studies done in the area.

**CRISP-DM Methodology**

Your report should also comprise of the following points:

Business Understanding

* Identify and describe the business problem that you will address.
* A precise statement of the business problem?
* How will the data mining solution address the business problem?

Data Understanding

* Identify and describe the data (and data sources) that will support data mining to address the business problem.
* Explore the data. What information did you derive from the exploratory process?
* Is the data of good quality? If not, how would you deal with this issue?

Data Preparation

* Specify how you prepared your data for the data mining task.
* How did you go about the following tasks (if they are not required for your project, how would you have handled them)?

– select data attributes, clean, construct, integrate and format data?

* If your data is already fully prepared, discuss how you would prepare an unclean

data.

Modelling

* Specify the type of model built.
* Discuss your choices for data mining algorithm: what are alternatives, and what

are the pros and cons.

* Discuss why and how this model would “solve” the business problem (i.e., improve along some dimension of interest to the firm).

Evaluation

* Discuss how the result of the data mining is/should be evaluated.
* Review the data mining process you used in achieving the project result.
* Were there any concerns that were overlooked or should be revisited?
* Did the model meet the business goal?
* What are the next steps?

Deployment

* Discuss how the result of the data mining will be deployed.
* Identify the risks associated with your proposed plan and how you would mitigate

them.

* Discuss any issues the firm should be aware of regarding deployment.
* Are there important ethical considerations?

**READING LIST**

<https://readinglists.rgu.ac.uk/leganto/public/44RGU_INST/lists/1622660990004636?auth=LDAP>

**HANDING IN ASSESSMENT WORK**

**Coursework should be submitted electronically via the designated Assignment Dropbox in the Module Study Area in CampusMoodle.**

The University operates a Fit to Sit Policy which means that if you undertake an assessment then you are declaring yourself well enough to do so.

* **Deferrals** – If you are not fit to sit an assessment, you should complete a ‘Deferral Request Form’.
* **Extensions** – If you require a short extension, you should complete and submit a ‘Coursework Extension Form’.

These forms are available on the RGU website at: [www.rgu.ac.uk/academicregulationsstudentforms](http://www.rgu.ac.uk/academicregulationsstudentforms) or through the RGyoU Portal under the ‘My Results’ tab. You should submit the form through your RGU email account to your School-specific email address, which can be found at: [www.rgu.ac.uk/academicregulations](http://www.rgu.ac.uk/academicregulations)

Supporting evidence should be scanned and included with the email.

Coursework received late, without valid reason, will be regarded as a Non-Submission (NS) and one of your assessment opportunities will be lost.

**PLAGIARISM**

“Plagiarism is the practice of presenting the thoughts, writings or other output of another or others as original, without acknowledgement of their source(s). All material used to support a piece of work, whether a printed publication or from electronic media, should be appropriately identified and referenced and should not normally be copied directly unless as an acknowledged quote. Text translated into the words of the individual student should in all cases acknowledge the source.”

Before submitting assignments, you should check through it to ensure that:

* all material identified as originally from a previously published source has been properly attributed by the inclusion of an appropriate citation in the text;
* direct quotations are marked as such (using “quotation marks” at the beginning and end of the selected text), and
* full details of the reference citations have been included in the Reference List (in RGU Harvard format).

Students are encouraged to review their work using the Turnitin Plagiarism Detection Service via CampusMoodle before final submission.

For further information on academic honesty, please see:

<http://campusmoodle.rgu.ac.uk/course/view.php?id=76611>

For further information on academic writing, please see:

<http://www4.rgu.ac.uk/energy/induction/page.cfm?pge=48530>

For further information on RGU Harvard Referencing, please see:

<http://libguides.rgu.ac.uk/rguharvard>

**WORD COUNT**

If the word count of an assessment is considered critical, then this will be reflected in the assessment criteria for that assessment.

Generally, the title page, executive summary (or abstract), contents page, lists of tables and figures, glossary (if required), reference list, bibliography (if required) and any appendices are not part of the word count.

Everything in the main body of text, including headings, sub-headings, citations and direct quotes, is included in the word count.

Anything you consider essential for your marker to read should be in the main body of text. Anything that is supplementary or supporting material should be in the appendices. Regarding tables in the main body of text:

* A table containing mainly numeric content would **not** be considered part of the word count.
* A table containing mainly text content **would** be considered part of the word count.

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ASSESSMENT GRID – (CBM204) DATA ANALYTICS FOR BUSINESS DECISIONS COMPONENT 1 – 100% WEIGHTING

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| **Grade** | **A** | **B** | **C** | **D** | **E** | **F** |
| **Criteria**  **(weighting – 100%)** | **Excellent: Outstanding Performance** | **Commendable: Meritorious Performance** | **Good: Highly Competent Performance** | **Satisfactory: Competent Performance** | **Borderline Fail** | **Fail: Unsatisfactory** |
| **Business Understanding**  **Data Understanding**  **Data Preparation**  **Modelling**  **Evaluation**  **Deployment**  **Writing and presentation** | Excellent description of the business problem and the data mining goal, and an excellent proposition of how the data mining solution will address the business problem. | Very good description of the business problem and the data mining goal, and very good proposition of how the data mining solution will address the business problem. | Good description of the business problem and the data mining goal, and good proposition of how the data mining solution will address the business problem. | Satisfactory description of the business problem and the data mining goal, and a satisfactory proposition of how the data mining solution will address the business problem. | Weak description of the business problem and the data mining goal, and a weak proposition of how the data mining solution will address the business problem. | Unsatisfactory description of the business problem and the data mining goal, and a poor proposition of how the data mining solution will address the business problem. |
| Excellent description of the project data. Excellent data exploration to identify insightful information about the data. | Very good description of the project data. Very good data exploration to identify insightful information about the data. | Good description of the project data. Good data exploration to identify useful information about the data. | Satisfactory description of the project data. Satisfactory data exploration to identify useful information about the data. | Weak description of the project data. Weak data exploration. | Unsatisfactory description of the project data. Unsatisfactory data exploration. |
| Excellent discussion of the data preparation performed and how the tasks were carried out, or excellent description of the data preparation steps. | Very good discussion of the data preparation performed and how the tasks were carried out, or very good description of the data preparation steps. | Good discussion of the data preparation performed and how the tasks were carried out, or good description of the data preparation steps. | Satisfactory discussion of the data preparation performed and how the tasks were carried out, or satisfactory description of the data preparation steps. | Weak discussion of the data preparation performed and how the tasks were carried out, or Weak description of the data preparation steps. | Unsatisfactory discussion of the data preparation performed and how the tasks were carried out, or unsatisfactory description of the data preparation steps. |
| Excellent discussion of the modelling stage of the project.  Demonstrate excellent choice of data mining algorithm and how the model solves the business problem. | Very good discussion of the modelling stage of the project.  Demonstrate very good choice of data mining algorithm and how the model solves the business problem. | Good discussion of the modelling stage of the project.  Demonstrate good choice of data mining algorithm and how the model solves the business problem. | Satisfactory discussion of the modelling stage of the project.  Demonstrate Satisfactory choice of data mining algorithm and how the model solves the business problem. | Limited discussion of the modelling stage of the project.  Demonstrate weak choice of data mining algorithm. Model did not solve the business problem. | Poor discussion of the modelling stage of the project.  No algorithm built. |
| Excellent discussion of the evaluation of the modelling result(s). | Very good discussion of the evaluation of the modelling result(s). | Good discussion of the evaluation of the modelling result(s). | Satisfactory discussion of the evaluation of the modelling result(s). | Weak discussion of the evaluation of the modelling result(s). | No result generated and thus no evaluation. |
| Excellent discussion on how model is deployed and potential deployment risks. | Very good discussion on how model is deployed and potential deployment risks. | Good discussion on how model is deployed and potential deployment risks. | Satisfactory discussion on how model is deployed and potential deployment risks. | Weak discussion on how model is deployed and potential deployment risks. | Very little no discussion on how a model is deployed and potential deployment risks. |
| Excellent structure, organisation, and presentation as appropriate to report writing conventions. | Very good structure, organisation, and presentation as appropriate to report writing conventions. | Good structure, organisation, and presentation as appropriate to report writing conventions. | Satisfactory structure, organisation, and presentation as appropriate to report writing conventions. | Weak structure, organisation, and presentation as appropriate to report writing conventions. | Poor structure, organisation, and presentation as appropriate to report writing conventions. |