

Subject Outline

Subject Name	Data Science Project 1
Subject Code	MA5853
Study Period	SP84 2021
Study Mode	Online
Campus	JCU Online
Subject Coordinator	Neil Fraser

We acknowledge the Traditional Owners of the lands and waters where our University is located and actively seek to contribute and support the JCU Reconciliation Statement, which exemplifies respect for Australian Aboriginal and Torres Strait cultures, heritage, knowledge and the valuing of justice and equity for all Australians.

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Pre-requisites

Before attending this course, you should have taken a college-level course in statistics (e.g MA5820 Statistical Methods) that taught explanatory modelling, t-tests, ANOVA, distribution analysis, hypothesis testing, and regression techniques or have equivalent knowledge. Students should also have an understanding of the basics of computing, data management, different data types and some programming.

Subject outline preparation

This subject outline has been prepared by Neil Fraser for the College of Science and Engineering, Division of DTES, James Cook University. Updated 12.02.2020.

- | | | |
|---|---|-----------------------------|
| Q1. This subject is offered across more than one campus and/or mode and/or teaching period within the one calendar year. | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |
| Q2. If yes (Q1), the design of all offerings of this subject ensure the same learning outcomes and assessment types and weightings. | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |

Subject outline peer reviewer

Name	Ron White
Position	Associate Professor
Date reviewed	20/2/2020

Staff contact details

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Learning Advisors	The Learning Centre	N/A	07 4781 5500	Online contact form	Visit Learning Advice Desk – JCU Library
Student Success Advisor	Online	N/A	1300 535 423	Studentsuccess@online.jcu.edu.au	Mon-Thu 0900-1730 Fri 0900-1700

*Other consultation times by appointment only.

Contents

1	Subject at a glance	4
1.1	Student participation requirements.....	4
1.2	Key dates.....	4
2	Subject details.....	5
2.1	Subject description.....	5
2.2	Subject learning outcomes.....	5
2.3	Learning and teaching in this subject.....	6
2.4	Student feedback on subject and teaching.....	6
2.5	Subject resources and special requirements	6
3	Assessment details.....	7
3.1	Requirements for successful completion of subject	7
3.2	Feedback on student learning.....	7
3.3	Assessment tasks	8
4	Submission and return of assessment	29
4.1	Submission of assessment.....	29
4.2	Return of assessment.....	29
5	Subject calendar	30

1 Subject at a glance

1.1 Student participation requirements

The JCU [Learning, Teaching and Assessment Policy](#) (4.3) indicates that, “a **3 credit point subject** will require a **130 hour work load** of study-related participation including class attendance over the duration of the study period, **irrespective of mode of delivery**”. This work load comprises **timetabled hours** and **other attendance requirements**, as well as **personal study hours**, including completion of online learning activities and assessment requirements. Note that “attendance at specified classes will be a mandatory requirement for satisfactory completion of some subjects” (Learning, Teaching and Assessment Policy, 5.10); and that additional hours may be required per week for those students in need of **English language, numeracy** or **other learning support**.

Key subject activities	Time	Day and date	Room/Location
Tutorial (1 hour per week)	Refer to JCU Timetable 2020		
Other mandatory attendance requirements:	Week 3: Preliminary executive report feedback (Self-organised)	Week 6: Final executive report presentation and Q&A session (Self-organised)	

For information regarding class registration, visit the [Class Registration Schedule](#).

1.2 Key dates

Key dates	Date
Census date	See 2020 Study Period and Census Dates
Last date to withdraw without academic penalty	See 2020 Study Period and Census Dates
Assessment task 1: Problem scoping [15%]	Individual Due 11.59 pm Sunday, Week 2 (18/7/2021)
Assessment task 2: Preliminary executive report [25%]	Group Due, 11.59 pm Sunday, Week 3 (25/7/2021)
Assessment task 3a: Final executive report [30%]	Group Due 11.59 pm Wednesday, Week 6 (11/08/2021)
Assessment task 3b: Presentation and Q&A session [15%]	Group Due Sunday 11.59 pm, Week 6 (15/08/2021)
Assessment task 4: Reflection [15%]	Individual Due 11.59 pm Wednesday, Week 7 (18/08/2020)

2 Subject details

2.1 Subject description

In this subject, students will complete a data science project in conjunction with an industry partner. They will apply advanced research skills and methods to analyse a real data science problem in industry. The subject is conducted as a management consultancy engagement within an industry setting with guidance provided by the host organisation/industry learning partner. Students will develop advanced knowledge of professional practices, critically evaluate potential data science solutions based on theory, practice and literature, gathering of evidence, actioning their research and client consultation. Students will apply and develop advanced skills in developing a data science project to demonstrate advanced skills they have attained on the course.

The demonstrated skills include, but are not limited to, data wrangling, data quality, data processing, metadata management, statistical methods, machine learning and handling different formats. Softer skills which will also need to be demonstrated as part of the project include problem solving, teamwork and interpersonal communication skills. Students will develop an awareness of employer expectations with regard to professional performance and conduct. At the conclusion of the project, students will provide a detailed report, recommendations, and management presentation to their industry host. Finally, students will need to develop and demonstrate advanced professional communication skills in order to advance their readiness for employment in the data science industry after graduation.

Students will be required to self-organise into groups of 3-5. If any student is unable to find a group to participate in by Wednesday of week 1 they will automatically be allocated by the unit convenor. Several projects will be provided to the students for selection. On rare occasions a particular group of students may wish to focus on their own specific industry problem, if this is the case it requires an industry sponsor who will need to discuss this project with the unit convenor in Week 0. Please inform the unit convenor in the first week and they will decide on its appropriateness after discussions with the appropriate sponsor.

2.2 Subject learning outcomes

Students who successfully complete this subject will be able to:

- Apply and develop data science consultancy skills.
- Managed stakeholder engagement and network with industry professionals
- Apply and assess different methods and techniques of applied research.
- Demonstrate and apply time and project management skills.
- Demonstrate and apply advanced theoretical and technical knowledge of data science to an industry or research problem.
- Apply advanced research, consultancy, and presentation skills.
- Engage effectively with others to critically examine different viewpoints, work productively in a group by coordinating activities, allocating tasks and synthesising different material and viewpoints.
- Communicate the findings of a formal piece of work and meet a deadline.
- Reflect on knowledge learned of theory and business practices for future learning and ongoing professional development.

These outcomes will contribute to your overall achievement of **course learning outcomes**. Your course learning outcomes can be located in the entry for your course in the electronic [JCU Course and Subject Handbook 2020](#) (click on 'Course Information' bar/ select 'Undergraduate Courses' or 'Postgraduate Courses'/ select relevant course/ scroll down to 'Academic Requirements for Course Completion', 'Course learning outcomes').

2.3 Learning and teaching in this subject

This subject is designed using the authentic learning instructional approach that allows students to discover, discuss, and meaningfully construct concepts and relationships in contexts that involve real-world problems and projects that are relevant in the industry (Donovan, Bransford & Pellegrino, 1999). The real-world problems will be predominantly approached in groups – in a similar setting to a data science consultancy firm. Group work in this subject refers to learning that involves students in working with others and, crucially, learning together on a foundation of student-student interaction (Biggs & Tang 2009), together with the concept of learning from each other (Race 2007). This subject provides numerous opportunities for group collaboration, leadership and time-management.

Tutorials:

- Weeks 1–4 will consist of general tutorials on data science consultancy engagement, team roles, project management and communications.
- Weeks 5–6 will consist on online drop-in sessions from students to seek for advice from their tutors.

2.4 Student feedback on subject and teaching

As part of our commitment at JCU to improving the quality of our courses and teaching, we regularly seek feedback on your learning experiences. Student feedback informs evaluation of subject and teaching strengths and areas that may need refinement or change. **YourJCU Subject and Teaching Surveys** provide a formal and confidential method for you to provide feedback about your subjects and the staff members teaching within them. These surveys are available to all students through [LearnJCU](#). You will receive an email invitation when the survey opens. We value your feedback and ask that you provide constructive feedback about your learning experiences for each of your subjects, in accordance with responsibilities outlined in the [Student Code of Conduct](#). Refrain from providing personal feedback on topics that do not affect your learning experiences. Malicious comments about staff are deemed unacceptable by the University.

In response to previous student feedback and other data, the following enhancements to this subject have been made:

- With clearer assessment instructions and expectations through the use of rubrics.
- With explicit relevancy to industry using real projects and stakeholder supervision.

2.5 Subject resources and special requirements

All subject readings and resources, including journal articles, book chapters, websites, videos, print and eTextbooks, are available to view online from your *Readings list* via your LearnJCU subject site. Textbooks listed in your *Readings list* include links to Co-op Bookshop purchasing details and library holdings. The JCU Library has limited print copies of prescribed textbooks for two-day loans, and options for viewing available eTextbooks online.

Additionally, you can find the most appropriate library subject resources, including dedicated discipline libguides, relevant databases and access to library services and staff through the *Your Library* tool, in your LearnJCU subject site.

The following textbook is required for this subject:

- Baaij, M. (2014). *An Introduction to Management Consultancy*. Sage Publications Ltd.

3 Assessment details

3.1 Requirements for successful completion of subject

In order to pass this subject, you must:

- Achieve an overall percentage of 50% or more;
- Organise and attend the Week 3 – Preliminary executive report feedback meeting with the project stakeholder
- Organise and attend the Week 6 – Final executive report presentation and Q&A session meeting with the project stakeholder

*All group assessment results are subjective to change if there is substantial evidence that a student has not been engaging in the task.

Assessment items and final grades will be reviewed through moderation processes ([Learning, Teaching and Assessment Policy](#), 5.13-5.18). It is important to be aware that assessment “is always subject to final ratification following the examination period and that no single result represents a final grade in a subject” (Learning, Teaching and Assessment Policy, 5.22.).

3.1.1 Inherent requirements

[Inherent requirements](#) are the fundamental abilities, attributes, skills and behaviours needed to achieve the learning outcomes of a course while preserving the academic integrity of the university’s learning, assessment and accreditation processes. Students and prospective students must be able to demonstrate that they have acquired or have the ability to acquire the inherent requirements for their degree.

Reasonable adjustments may be made to assist students manage additional circumstances impacting on their studies provided these do not change the academic integrity of a degree. Reasonable adjustments do not alter the need to be able to demonstrate the inherent requirements of the course. Students who believe they will experience challenges completing their degree or course because of their disability, health condition or other reason should discuss their concerns with an Access Ability Services team member or a member of College staff, such as the Course Coordinator. In the case where it is determined that inherent requirements cannot be met with reasonable adjustments, the University staff can provide guidance regarding other study options.

3.2 Feedback on student learning

Feedback for students will be provided on all summative assessment items.

3.3 Assessment tasks

ASSESSMENT TASK 1: PROBLEM SCOPING

Aligned subject learning outcomes	<ul style="list-style-type: none">• Explain the principal processes of a data science consultancy• Describe and discuss the main methods employed by data science consultants to conduct business research, diagnose problems and develop solutions for better business outcomes• Present advice effectively in a graphic form to a senior executive audience for their consideration, decision-making and implementation.
Work-based skills	<ul style="list-style-type: none">• Distinguish client problems and opportunities that may require management consultancy• Identify and assess different roles of management consultancy• Understand the differences in terms of roles and benefits between external and internal management consultancy.
Group or individual	Individual
Length	Two A4 pages or one A3 page
Weighting	15%
Due date	Due 11.59 pm Sunday, Week 2 (22/03/2020)

ASSESSMENT TASK 1: DESCRIPTION

In this subject, you will form discrete teams to complete a data science consultancy project for an organisation facing a data challenge. Each individual in the group will need to articulate, from a data science consultant's point of view, the critical issues to consider when undertaking a consultancy assignment. Assessment 1 is to be undertaken prior to working in groups. Navigate to the 'Group project selection' task found in Assessment module and select a desired project for you to work on in this subject. Projects will be available for selection along with briefing documents in the O Week module.

Main assessment activity

1. Select your desired group project on LearnJCU in the Assessment module.
2. Complete preliminary research for the project by:
 - a. Describing and scoping the data science problem assigned to the group and researching the organisation
 - b. Identifying the process and methods of data science consulting necessary to deliver the project
 - c. Identifying the roles necessary to complete this project
 - d. Identifying the team members you are working with and selecting a preferred role. Justify your choice using your key skills and professional experience.
3. Present this in a mind map or infographic. This should not be more than two A4 pages or one A3 page. Below are some tools that can assist you in preparing the infographic.
 - a. [Piktochart](#)

- b. [Canva](#)
 - c. [Miro](#)
 - d. [Mindmap \(MindMeister\)](#)
4. Attend a meet-and-greet session with your project stakeholder. This will be pre-arranged. Your tutors will announce the date and time of this session. You may use this time to:
- a. Present or talk through the information you have gathered regarding the project
 - b. Ask the stakeholder any further questions to understand what solution they are looking for, such as their long-term objective.
- Note:** If you are unable to attend the meet-and-greet session, please watch the video recording.
5. Add a section titled 'Additional information from the project stakeholder' to your mind map or infographic outlining what else you have learnt from your meet-and-greet with the stakeholder.

Assessment submission guidelines

Your submission for Assessment 1 should be uploaded to LearnJCU as one file meeting the following conditions:

- Filename: A1_firstname_lastname.pdf
- Length: 500 words (+/-10%)
- Page count: A maximum of two A4 pages or one A3 page.
- Formatting: 12pt font size.

You can upload as many times as you want, but only the last submission is graded.

Note: If you use MS Word or any other program, save your work as a PDF for submission.

ASSESSMENT TASK 1: CRITERIA SHEET (15%)

Criteria	HD	D	C	P	F
Identification of project scope and affiliated organisation (5 marks)	Systematically and accurately identifies the specific data science problem scope and background information on the affiliated organisation.	Accurately identifies the specific data science problem scope and background information on the affiliated organisation.	Clearly identifies the specific data science problem scope and background information on the affiliated organisation with minor inaccuracies.	Identifies core information on the data science problem scope and background information on the affiliated organisation with some inaccuracies.	Demonstrates limited or no identification of the specific data science problem scope and/or background information of the affiliated organisation.
Identification of the process and methods in data science consulting (5 marks)	Systematically and logically identifies the process and methods of data science consulting for the delivery of their project.	Logically identifies the process and methods of data science consulting for the delivery of their project.	Identifies most of the process and methods of data science consulting for the delivery of their project.	Identifies the major process and methods of data science consulting for the delivery of their project with some inaccuracies.	Limited or no identification of the process and methods of data science consulting for the delivery of their project.
Identification of roles (5 marks)	<p>Clearly and succinctly describes all the key roles required to complete the project.</p> <p>Accurately and succinctly lists all team members in the project and a description of their expertise.</p> <p>Clearly and logically justifies the learner's preferred role(s) in the project using evidence of key skills and professional experience.</p>	<p>Clearly describes all the key roles required to complete the project.</p> <p>Accurately lists all team members in the project and a description of their expertise.</p> <p>Clearly justifies the learner's preferred role(s) in the project using evidence of key skills and/or professional experience.</p>	<p>Clearly describes most of the key roles required to complete the project.</p> <p>Clearly lists team members in the current project with some description of their expertise.</p> <p>Mostly justifies the learner's preferred role(s) in the project using evidence of key skills and/or professional experience.</p>	<p>Describes the key roles required to complete the project.</p> <p>Lists most team members in the current project with some description of their expertise.</p> <p>Unclear justification of the learner's preferred role(s) in the project using evidence of key skills and/or professional experience.</p>	<p>Limited or no description of key roles required to complete the project. Limited or no description of team members and their expertise is present. Limited or no justification of the learner's preferred role(s), without mention of key skills and/or professional experience.</p>

ASSESSMENT TASK 2: PRELIMINARY EXECUTIVE REPORT
AUSTRALIA

Aligned subject learning outcomes	<ul style="list-style-type: none"> • Apply and develop data science consultancy skills. • Managed stakeholder engagement and network with industry professionals. • Apply and assess different methods and techniques of applied research. • Demonstrate and apply time and project management skills. • Demonstrate and apply advanced theoretical and technical knowledge of data science to an industry or research problem. • Apply advanced research, consultancy, and presentation skills. • Engage effectively with others to critically examine different viewpoints and, work productively in a group by coordinating activities, allocating tasks and synthesising different materials and viewpoints. • Communicate the findings of a formal piece of work and meet a deadline. • Reflect on knowledge learned of theory and business practices for future learning and ongoing professional development.
Work-based skills	<ul style="list-style-type: none"> • Distinguish client problems and opportunities that may require management consultancy. • Communicate advice effectively in written and oral forms to a senior executive audience for their consideration, decision-making and implementation.
Group or individual	Group
Length	A single group document (1000 words) with individual sections highlighted with explicit team member contribution
Weighting	25% (meeting attendance is a pass requirement)
Due date	Due, 11.59 pm Sunday, Week 3 (29/03/2020)

ASSESSMENT TASK 2: DESCRIPTION

As a group, meet with the project stakeholder to present the project as a preliminary executive proposal with the information you have obtained.

Main assessment activity

1. Prepare a preliminary executive report containing:
 - a. An examination of the data science problem that the client wishes to engage
 - b. Fundamental processes to be undertaken by the consulting team during the consultancy engagement
 - c. Key deliverables, time frames and responsibilities for the work
 - d. An examination of the stakeholder's current business context, opportunities and threats
 - e. Data collection and methods

- f. The proposed high-level solution design.
2. Share this information with your project stakeholder in a meeting. This can be done using any communication channels (teleconference and/or video conference). You must complete this requirement in order to pass the subject. Use this time to:
 - a. Present the information you have gathered regarding the project. The stakeholder will then give you feedback regarding your solution.
 - b. Ask any further questions to the stakeholder to understand how to better build a solution that suits their needs.

Assessment submission guidelines

Your submission for Assessment 2 should be uploaded to LearnJCU as two separate files.

File 1: Preliminary executive report meeting the following requirements:

- Filename: A2_Group_name.pdf
- Length: 1000 words (+/-10%)
- Page count: A maximum of eight A4 pages
- Formatting: 12pt font size, single spaced, with default settings for font, line spacing and margins.

File 2: Appendix and supporting files used to complete this report, meeting the following requirements:

- Screenshot of meeting with stakeholder and all members present
- 12pt font size, single spaced, with default settings for font, line spacing and margins
- File two (2) must be submitted as one zipped file.

Upload all submission files in one go. Only 1 attempt is allowed.

Note. If you use MS Word or any other program, save your work as a PDF for submission.

ASSESSMENT TASK 2: CRITERIA SHEET (25%)

Criteria	HD	D	C	P	F
Discussion of chosen data science problem (5 marks)	Demonstrates exceptional understanding of the specific data science problem. Provides outstanding examples to illustrate ideas.	Demonstrates comprehensive understanding of the data science problem. Provides highly effective examples to illustrate ideas.	Demonstrates sound understanding of the data science problem. Provides sound examples to illustrate ideas.	Demonstrates satisfactory understanding of the data science problem. Provides basic examples to illustrate ideas.	Demonstrates limited or no understanding of the data science problem. Provides vague or no examples to illustrate ideas.
Analysis of specific data science problem as it relates to the client (5 marks)	A sophisticated analytical discussion of the data science problem. Discussion includes critical and comprehensive detail to contextualise the issue for the client.	A convincing analytical discussion of the data science problem. Discussion includes substantial detail to contextualise the issue for the client.	A sound analytical discussion of the data science problem. Discussion includes sufficient detail to contextualise the issue for the client.	A satisfactory analytical discussion of the data science problem. Discussion includes basic detail to contextualise the issue for the client.	Limited or no analysis of the data science problem. Vague and/or insufficient detail to provide context.
High-level solution choice (5 marks)	Provides a highly plausible solution to address the specific data science problem.	Provides a plausible solution to address the specific data science problem.	Provides a sound solution to address the specific data science problem.	Provides a basic solution to address the specific data science problem.	Unsatisfactory or insufficient solution is provided to address the specific data science problem.
Use of evidence (5 marks)	An extensive range of relevant literature from scholarly sources has been used discerningly to support the presentation content. APA 7th edition referencing conventions in reference list are applied accurately and consistently throughout.	An in-depth range of relevant literature from scholarly sources has been used effectively to support the presentation content. APA 7th edition referencing conventions in the reference list have been used, almost always accurately and consistently.	A sound range of literature from scholarly sources has been used adequately to support the presentation content. APA 7th edition referencing conventions are used in the reference list but there are inconsistencies.	A satisfactory range of literature from varied sources, some of which are not credible or relevant, have been referred to support the presentation content. Attempt made to adhere to APA 7th edition referencing conventions in the reference list, but with some errors and inconsistencies.	Literature from sources is largely irrelevant and/or not credible, or no literature has been used to support the presentation content. Adherence to APA 7th edition referencing conventions in the reference list is insufficient.

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<p>Group work</p> <p>(5 marks)</p>	<p>Functions effectively as a cohesive team with clear coordination between participating members.</p> <p>Clear evidence of all participants contributing equally.</p>	<p>Evidence of cohesive team functioning with some links between members' contributions.</p> <p>Evidence of equal contributions of group members.</p>	<p>Some evidence of cohesive team functioning and coordination between group members' contributions.</p> <p>Some evidence of equal contributions in the group.</p>	<p>Limited evidence of team functioning and/or coordination between members' contributions.</p> <p>Minimal evidence of reasonably balanced contributions between group members.</p>	<p>Limited evidence of coordination between members' contributions.</p> <p>Variable contributions between group members.</p>
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ASSESSMENT TASK 3A: FINAL EXECUTIVE REPORT
AUSTRALIA

Aligned subject learning outcomes	<ul style="list-style-type: none"> • Apply and develop data science consultancy skills • Manage stakeholder engagement and network with industry professionals • Describe and integrate the techniques required for successful business consulting • Apply business consulting techniques to the design, research and management of a client project • Demonstrate and apply advanced theoretical and technical knowledge of data science to an industry or research problem • Apply advanced research, consultancy and presentation skills • Engage effectively with others to critically examine different viewpoints and work productively in a group by coordinating activities, allocating tasks and synthesising different materials and viewpoints • Communicate the findings of a formal piece of work and meet a deadline.
Work-based skills	<ul style="list-style-type: none"> • Demonstrate and apply time and project management skills • Working in a team • Managing client expectations and relationships.
Group or individual	Group
Length	A single group document (3000 words) with individual sections highlighted with explicit team member contribution
Weighting	30%
Due date	Due 11.59 pm Wednesday, Week 6 (15/04/2020)

ASSESSMENT TASK 3A: DESCRIPTION

This assessment requires students to collaboratively prepare and submit a final written report that explains the key data science problem involved in the consulting project, the data science processes undertaken to develop the solution(s), and any specific recommendations for consideration and implementation by the client to provide better business outcomes. Students, in their groups, are also required to present the final solution and recommendations to the client by narrating a PowerPoint presentation. The PowerPoint presentation will be reviewed by the panel comprising the client executive and academic instructor for the subject.

Main assessment activity

1. Prepare your final executive project report outlining your methodology, solution and key findings. Remember to signpost which sections each team member has completed. Your report should include:
 - **Title page** – Provide a title that is concise (less than 20 words) and provides an accurate reflection of the contents of the report. Your name should be listed below the title.
 - **Executive summary** – Clearly articulate to the reader an overview of the insights reports.
 - **Introduction** – Discuss the problem and the context of why it is important.

- **Stakeholder** – Elaborate on the stakeholder’s requirements, including the explanation of the how the data science solution was developed and the possible implementation of the data science solution to the client’s business in achieving longer-term benefit.
 - **Data collection and methods** – Provide an explanation of the data sources you have found to try to address the problem and improve the overall insights, including links to your data and any other relevant documents. A brief overview of collecting, cleaning, modelling and methods used in the collection should be provided. Where possible, discuss the data science processes undertaken to develop the solution(s).
 - **Solution and analysis** – A simple schematic with a clear explanation proposing the solution. The solution must support all in-scope items from the client brief. Include your analysis tables and graphs. This should be interspersed with commentary so that it can be read as a document. Add appropriate interpretations and discussions of your results and model selection/performance where appropriate.
 - **Discussion and recommendations** – Your conclusions from your project. Restate the original objectives and/or problems and contrast this against the obtained achievements. Discuss the limitations of the analysis, such as what you were able to show or what you couldn't show. Include suggestions for further work with any recommendations on how the project could be improved, such as including other data sources that might be useful for a future analysis and/or more things you could have done if given more time.
 - **Language** – In this task, you will also be assessed for your writing, in that the report must:
 - Be coherently organised and easy to follow
 - Contain no spelling or grammatical errors, with terminology clearly defined
 - Demonstrate a writing style that is clear, concise and persuasive
 - Have each figure/table numbered, followed by a caption and referred to in the body of text, most noticeably in the results and/or discussion section
 - Reinforce the most relevant achievements of the work in the figures/tables provided.
2. In a separate document, prepare an appendix list to go with your final executive report. This is a list of resource links that you have used. The format is not important, but you should list links to all data, project code repositories, books and web pages that you have used or referred to in your project as a separate list at the end of your report. A minimum of four references must be used and provided.

Assessment submission guidelines

Your submission for Assessment 3a should be uploaded to LearnJCU as two separate files.

File 1: Preliminary executive report saved meeting the following requirements:

- Filename: A3a_project number.pdf
- Length: 3000 words (+/-10%)
- Formatting: 12pt font size, single spaced, with default settings for font, line spacing and margins.

File 2: Appendix and supporting files used to complete this report, meeting the following requirements:

- A maximum of two A4 pages of references
- 12pt font size, single spaced, with default settings for font, line spacing and margins
- File two (2) must be submitted as one zipped file.

Upload all submission files in one go. Only one attempt is allowed.

ASSESSMENT TASK 3A: CRITERIA SHEET (30%)

Criteria	HD	D	C	P	F
Title (1 marks)	The title is a concise (less than 20 words) and accurate reflection of the contents of the report. The author is listed below the title.	N/A	The title is concise (less than 20 words) and moderately reflects the contents of the report. The author is listed.	N/A	The title is not informative, exceeds the word length or Author not listed.
Executive summary (2 marks)	Clearly and accurately articulates to the reader an overview of the insights reports in a structured manner.	Clearly articulates to the reader an overview of the insights reports.	Mostly able to articulate to the reader an overview of the insights reports but the writing is not clear in places.	Attempts to articulate to the reader an overview of the insights reports but the writing is not clear in places.	Unclear articulation or no overview of the insights report. Writing is poor overall.
Introduction (1 marks)	Position and exceptions (if any) are clearly stated. The organisation of the argument is systematically and logically outlined using the dataset being considered. The context of the problem is clearly articulated with respect to the dataset.	Position and exceptions (if any) are stated. The organisation of the argument is logically outlined using the dataset being considered. The context of the problem is clearly articulated with respect to the dataset.	The position is mostly stated. The organisation of argument is clear in parts and/or only partially described and context mostly explained.	Attempts to state the position. The organisation of the argument is clear in parts, is only partially described and context mostly explained.	The position is vague or no position is stated. The organisation of the argument is missing, vague or not consistently maintained.
Data collection and methods (4 marks)	Systematic and logical background to data extracts is supplied. Clear and accurate justification of the suitability of the data, application of enhancements, application of pre-processing prior to analysis and/or application of statistical techniques (if used).	Logical background to data extracts is supplied. Clear justification of the suitability of the data, application of enhancements, application of pre-processing prior to analysis and/or application of statistical techniques (if used).	Mostly clear background to data extracts is supplied. Mostly accurate use of the applicable data information and methods items are addressed and reasonably explained.	Basic background to data extracts is supplied. Occasionally inaccurate and unclear use of the applicable data information. Methods items are mostly addressed and reasonably explained.	Little information and/or explanation about the data is provided and/or the grammar structure is difficult to follow and/or the data do not meet the minimum requirements.

Proposed solution (4 marks)	Persuasively and clearly articulates a proposed solution to explain the targeted outcome. The explanation of the approaches and system components is succinct, clear and thoughtfully written.	Clearly articulates a proposed solution to explain the targeted outcome. The explanation of the approaches and system components is succinctly written.	Mostly clear articulation of a proposed solution to explain the targeted outcome. The explanation of the approaches and system components is written.	Partially articulates a solution design to explain the targeted outcome. The explanation of the approaches and system components is not clear in places.	Unclear – does not give an overview of the solution design and no evidence or explanation of the system components.
Analysis (4 marks)	The analysis is thorough, accurate and succinct. The results systematically and logically follow from the data collection and the methods. Description of model or experimental runs on the dataset is structured and clearly explained.	The analysis is systematic and succinct. The results clearly follow from the data collection and the methods. Description of model or experimental runs on the dataset is clearly explained.	The results are explained correctly. The results mostly follow from the data collection and the methods. Description of model or experimental runs on the dataset is mostly explained.	Describes the core results, with insufficient detail. The results mostly follow from the data collection and the methods. The description of model or experimental runs on the dataset is unclear or vaguely explained.	The results are not explained correctly and provide insufficient detail. The connection between the results and the data collection and methods is missing and/or not explained at all.
Discussion /Recommendations (5 marks)	The original objectives and/or problem are clearly and accurately restated and contrasted against the obtained achievements. The conclusion summarises a clear, persuasive and effective conclusion of the investigation and enhances the impact of the report. It accurately and clearly highlights limitations of the investigation.	The original objectives and/or problem is accurately restated and contrasted against the obtained achievements. The conclusion summarises a clear and effective conclusion of the investigation and enhances the impact of the report. It highlights some limitations of the investigation.	The conclusion is clearly stated and connections to the original objectives and/or hypotheses are mostly clear.	A basic conclusion is stated and connections to the original objectives and/or hypotheses are mostly clear, but it is lacking.	The conclusion may not be clear and/or the connections to the work reported are incorrect or unclear, or just a repetition of the findings without a suitable summary and interpretation, or the underlying logic has major flaws.
Writing (4 marks)	The report is systematically and logically organised. There are no spelling or grammatical errors, and terminology is clearly defined and consistently used. Writing is clear, concise and persuasive. Each figure/table is numbered, followed by a caption, and referred to in the body of the text, most noticeably in the results and/or discussion section. The figures/tables provided reinforce the most relevant achievements of the work. All references have been listed and referred to in the appropriate places in the body of the text and listed at the end of the report. At least 4 references have been provided.	The report is coherently organised. There are little spelling or grammatical errors, and terminology is clearly defined. Writing is mostly clear and concise. Most figures/tables are numbered, followed by a caption and referred to in the body of the text, most noticeably in the results and/or discussion section. The figures/tables provided mostly reinforce the most relevant achievements of the work. Most references have been listed and referred to in the appropriate places in the body of the text and listed at the end of	The report is generally well organised and most of the argument is easy to follow. There are only a few minor spelling or grammatical errors, or terms are not clearly defined and not consistently used. Writing is mostly clear but may lack conciseness. Most figures/tables are numbered, followed by a caption, and referred to in the body of the text, most noticeably in the results and/or discussion section. Most references have been listed and referred to in the appropriate places in the body of the text and listed at the end of the report. At least 2 references have been provided.	The report is sometimes unclearly organised. There are a few, minor and major spelling or grammatical errors, or terms are not clearly defined. Writing is occasionally unclear and lacks conciseness. Most figures/tables are numbered, followed by a caption, and referred to in the body of the text, most noticeably in the results and/or discussion section. Most references have been listed and referred to in the appropriate places in the body of the text and listed at the end of the report. At least 2	The report is poorly organised and difficult to read – does not flow logically from one part to another. There are several spelling and/or grammatical errors; technical terms may not be defined or are poorly defined. Figures/tables and/or references are sloppy or missing. Writing lacks clarity and conciseness.

		the report. At least 3 references have been provided.		references have been provided.	
Group work (5 marks)	<p>Functions effectively as a cohesive team with clear coordination between participating members.</p> <p>Clear evidence of all participants contributing equally.</p>	<p>Evidence of cohesive team functioning with some links between members' contributions.</p> <p>Evidence of equal contributions of group members.</p>	<p>Some evidence of cohesive team functioning and coordination between group members' contributions.</p> <p>Some evidence of equal contributions in the group.</p>	<p>Limited evidence of team functioning and/or coordination between members' contributions.</p> <p>Minimal evidence of reasonably balanced contributions between group members.</p>	<p>Limited evidence of coordination between members' contributions.</p> <p>Variable contributions between group members.</p>

ASSESSMENT TASK 3B: PRESENTATION AND Q&A SESSION

Aligned subject learning outcomes	<ul style="list-style-type: none"> • Apply and develop data science consultancy skills • Manage stakeholder engagement and network with industry professionals • Describe and integrate the techniques required for successful business consulting • Apply business consulting techniques to the design, research and management of a client project • Demonstrate and apply advanced theoretical and technical knowledge of data science to an industry or research problem • Apply advanced research, consultancy and presentation skills • Engage effectively with others to critically examine different viewpoints and work productively in a group by coordinating activities, allocating tasks and synthesising different materials and viewpoints.
Work-based skill	<ul style="list-style-type: none"> • Demonstrate and apply time and project management skills • Working in a team • Managing client expectations and relationships.
Length	No more than 20 slides of a PowerPoint presentation and 15 minutes of Q&A with the stakeholder
Weighting	15% (Meeting attendance is a pass requirement)
Due date	Due Sunday 11.59 pm, Week 6 (19/04/2020)

ASSESSMENT TASK 3B: DESCRIPTION

After collaboratively preparing and submitting the final report, students, in their groups, will then organise to present their findings to the client and hold a Q&A session. The Q&A session is designed for the client to answer any questions the client has regarding the recommendation(s) and project.

Main assessment activities

1. As a group, organise a meeting with your **stakeholder** and **tutor** before the assessment due date.
2. Ensure that you email a copy of the **Executive report** to your stakeholder prior to the meeting.
3. Attend the meeting and complete the following tasks:

- **Part 1: PowerPoint presentation**

Present a PowerPoint Presentation for your stakeholder and tutor to review. This should be a summary for the final executive report. There should be no more than 20 slides in the presentation it and be no more than 30 minutes in total to present. You will be marked for the:

- **Organisation**

The information presented must be organised in a manner that is clear and consistent with clear transitions between sections. The justification of the recommendation(s) is based on valid interpretations of the material presented.

- **Format, design and layout**

The presentation must demonstrate engaging visual design in all PowerPoint slides. Suitable choice in background colour, font colour, font style, font size and the amount of information per slide, animations and graphics will also be evaluated.

- **Narration**
The presentation must demonstrate sophisticated communication skills, as evidenced by compelling use of persuasive language and techniques, engaging voice and manner, and optimal use of meticulously presented PowerPoint slides that maximise the impact of the message. It must also fall within the allocated time and slide allowance.
- **Group work**
All members of the group function effectively in a cohesive team with clear coordination between participating members. There is clear evidence of all participants contributing equally.
- **Part 2: Q&A session**
Participate in a Q&A session with the stakeholder and tutor. This should last between 10 to 15 minutes. You will be marked for engagement with stakeholder. All members of the group should respond accurately to questions with relevant explanations and contextualisation/elaboration.
 - Take a screenshot of the meeting and upload this onto the assessment Dropbox. The screenshot should consist of all team members and the stakeholder. If the tutor cannot participate in the meeting, you must record the meeting and upload the video file into the assessment Dropbox.

Assessment submission guidelines

Your submission for Assessment 3b should be uploaded to LearnJCU as two files.

File 1: PowerPoint presentation

1. Filename: A3b_project number.ppt
2. Using PowerPoint, you will need to create a maximum of 20 slides that adequately portray the content of your summary.
 - a. Ensure that your slides are appealing – do not simply cut and paste text from your report.
 - b. Include graphics and images to elaborate key points and statistics.
3. You should include a reference list at the end of your presentation, written in correct APA 7th format. Any images used in your presentation should be referenced immediately under the image, and the reference should also be included in the reference list.

File 2: Appendix and supporting files used to complete this report, meeting the following requirements:

- Evidence of meeting with stakeholder (screenshot). Acceptable picture file formats are JPG, JPEG and PNG.
- If your tutor is not able to participate in the meeting, you must submit a video file of the meeting. Acceptable video file formats are MP4, MOV, WMV or AVI.
- File two (2) must be submitted as one zipped file.

Only 1 submission is allowed.

ASSESSMENT TASK 3B: CRITERIA (15%)

Criteria	HD	D	C	P	F
Organisation of presentation (3 marks)	Organisation of information is clear and consistent, with appropriate transitions between sections. Justification of conclusion/ recommendations based on valid interpretations of material presented.	Organisation of information is clear, consistent and appropriately sequenced, with an introduction and conclusion. Justification of conclusion/ recommendations based on material presented.	Organisation of information is clear and appropriately sequenced, with an introduction and conclusion. Justification of conclusion/ recommendations relates to material presented.	Organisation of information is mostly appropriate. Reasoning behind conclusion/ recommendations is occasionally weak.	Limited attempt at organising information in a coherent order. Reasoning behind conclusion/ recommendations unclear and/or incomplete.
Format, design and layout of the presentation (3 marks)	Demonstrates engaging visual design in all PowerPoint slides. Sophisticated choice in background color, font color, font style, font size and amount of information per slide, as well as animation and graphics.	Demonstrates engaging visual design on almost all of the PowerPoint slides. Advanced choice in background color, font color, font style, font size and amount of information per slide, as well as animation and graphics.	Demonstrates sound visual design on most of the PowerPoint slides. Suitable choice in background color, font color, font style, font size and amount of information per slide, as well as animation and graphics.	Demonstrates basic visual design on most of the PowerPoint slides. Basic choice in background color, font color, font style, font size and amount of information per slide, as well as animation and graphics.	The PowerPoint slides does not visually engage the viewer in more than one-third of the slides due to either poor choice of background colour, font colour, font style, font size and amount of information per slide, as well as animation and graphics.
Narration of presentation (3 marks)	Demonstrates sophisticated communication skills, as evidenced by compelling use of persuasive language and techniques, engaging voice and manner; and optimal use of meticulously presented PowerPoint slides that maximize the impact of the message. Falls within the allocated time and slide allowance.	Demonstrates advanced communication skills, as evidenced by effective use of persuasive language and techniques, confident voice and manner, and effective use of diligently presented PowerPoint slides that strengthen the impact of the message. Falls within the allocated time and slide allowance.	Demonstrates sound communication skills, as evidenced by appropriate language, techniques, voice, and manner, and appropriate use of well-presented PowerPoint slides that support the message. Falls within the allocated time and slide allowance.	Demonstrates satisfactory communication skills, as evidenced by suitable language, voice and manner, and basic PowerPoint slides that align with the message. Falls within the allocated time and slide allowance.	Demonstrates unsatisfactory communication skills, as evidenced by unsuitable or inaudible language or voice, and/or inappropriate, incorrect or illogical PowerPoint slides. Falls outside the allocated time and slide allowance.

Singapore

Townsville

Group work (3 marks)	<p>Functions effectively as a cohesive team with clear coordination between participating members.</p> <p>Clear evidence of all participants contributing equally.</p>	<p>Evidence of cohesive team functioning, with some links between members' contributions.</p> <p>Evidence of equal contributions of group members.</p>	<p>Some evidence of cohesive team functioning and coordination between group members' contributions.</p> <p>Some evidence of equal contributions in the group.</p>	<p>Limited evidence of team functioning and/or coordination between members' contributions.</p> <p>Minimal evidence of reasonably balanced contributions between group members.</p>	<p>Limited evidence of coordination between members' contributions.</p> <p>Variable contributions between group members.</p>
Engagement with stakeholder (3 marks)	<p>Responds accurately to all questions with relevant explanations and contextualisation/elaboration.</p>	<p>Responds accurately to all questions with relevant explanations.</p>	<p>Responds accurately to all questions.</p>	<p>Responds to most questions with rudimentary answers (not always clearly or completely) and fails to elaborate.</p>	<p>Responds to few questions; some incomplete and/or incorrect answers.</p>

ASSESSMENT TASK 4: REFLECTION

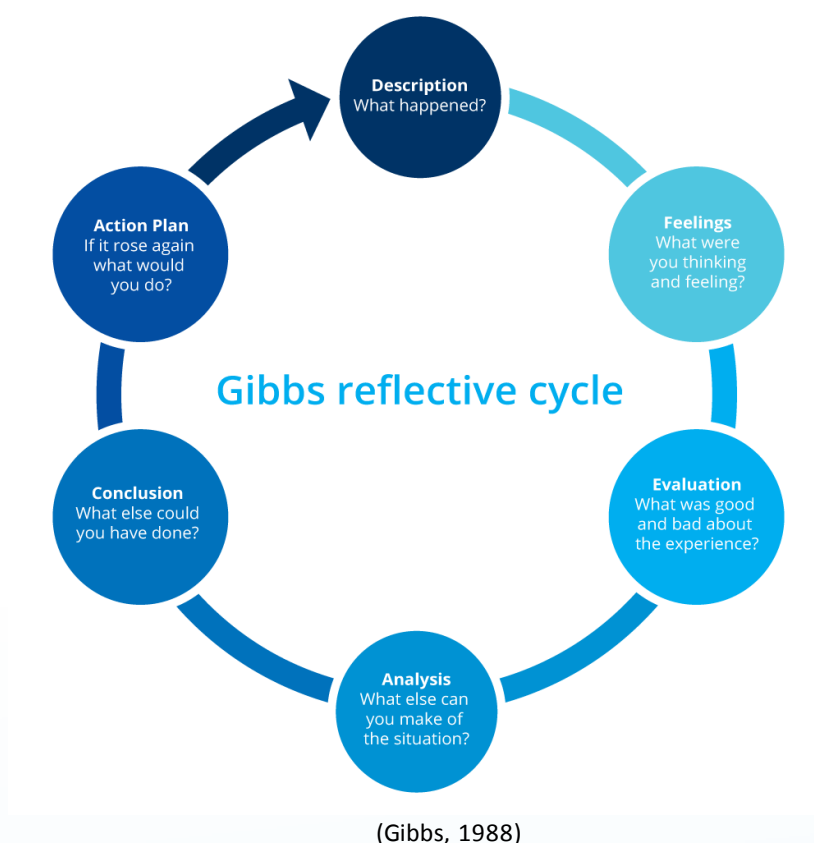
Aligned subject learning outcomes	<ul style="list-style-type: none"> To reflect on knowledge learnt of theory and business practices for future learning and ongoing professional development.
Work-based skill	<ul style="list-style-type: none"> Self-reflection and awareness on team and individual performance.
Weighting	15%
Length	750 words
Due date	Due 11.59 pm Wednesday, Week 7 (22/04/2020)

ASSESSMENT TASK 4: DESCRIPTION

Reflection activities focusing on experiences help contribute to your journey as a data scientist. This reflection will be useful to guide the development of your professional career, help build your portfolio of work and develop an understanding of common professional goals and practices for consultants.

Main assessment activity

- Prepare a self-reflection report on your experience of working in a group over the last six weeks using the Gibbs reflective cycle. Ask yourself the following.
 - Description** – Describe your experience of working together as a team in preparing a solution for your stakeholder over the last six weeks.
 - Feelings** – How did you feel about the overall experience (before, during and after)?
 - Evaluation** – Was it mostly good or bad? Discuss your subjective judgements here.
 - Analysis** – What sense can you make of the overall experience? You may need to your literature to support your analysis here. Reference the literature where necessary.
 - Conclusion** – What can you conclude generally from the overall experience? What can you conclude specifically about your individual response?
 - Action plan** – What will you do differently in the future? What is your action plan now?



Assessment submission guidelines

Your submission for Assessment 4 should be uploaded to LearnJCU as one file.

File 1: Written reflection meeting the following requirements:

- Filename: A4_firstname_lastname.pdf
- Length: 750 words (+/-10%)
- Page count: A maximum of two A4 pages
- Formatting: 12pt font size, single spaced, with default settings for font, line spacing and margins.

Upload all submission files in one go. You can upload as many times as you want, but only the last submission is graded.

Note. If you use MS Word or any other program, save your work as a PDF for submission.

ASSESSMENT TASK 4: CRITERIA (15%)

Criteria	HD	D	C	P	F
Summary of situation 2 marks	A sophisticated, concise and succinct description of the learner's overall project experience is described. All key facts surrounding the project and teamwork are presented. The overall project learning experience is for the student's professional and personal development.	A comprehensive, concise description of the learners overall project experience is described. Main key facts about the project and the teamwork are presented. The overall project learning experience is relevant for the student's professional and/or personal development.	A sound description of the learners overall project experience is described. Most key facts about the project and the teamwork are presented. The overall project learning experience is appropriate for the student professional and/or personal development.	A basic summary of the situation is presented in the client project. Some key facts about the case are omitted. The overall project learning experience is somewhat appropriate for the student's professional and/or personal development.	Insufficient summary of the situation is presented in the client project. A number of key facts are missing or summary is too detailed or repetitive. The overall project learning experience is inappropriate and not supportive for the student's professional and/or personal development.
Insight and reflection 8 marks	Deep, thoughtful reflection which demonstrates a substantial level of insight into consultancy and teamwork. Overall experience has relevance with clearly identified links made between theory and practice. Viewpoints and interpretations are insightful and well supported with detailed examples.	Thoughtful reflection, which demonstrates a high level of insight into consultancy and teamwork. An in-depth use of relevant examples from the event to support links between theory and practice. Interpretations are clearly discussed with implications for the author's own practice identified.	Sound reflection which shows a good level of insight into consultancy and teamwork. Overall experience is discussed with some examples provided to support link between theory and practice. Some implications for practice are identified.	Adequate reflection, which demonstrates some insight into the implications in the learner's consultancy and teamwork skills. Overall experience discussed inappropriate with implications for practice highlighted.	Limited or no reflection that provides insight into implications for the learner's consultancy and teamwork skills, with no clear links made between theory and practice.

<p>Use of evidence to reflective discussion</p> <p>3 marks</p>	<p>A comprehensively synthesised range of relevant, contemporary material drawn from various sources that strongly supports reflective discussion. No discernable errors in the citation of reference material with APA 7th edition referencing conventions have been applied accurately and consistently.</p>	<p>An in-depth range of relevant literature from scholarly sources has been used effectively to support reflection. APA 7th edition referencing conventions in both in-text referencing and the reference list have been used almost always accurately and consistently.</p>	<p>A sound range of literature from scholarly sources has been used adequately to reflection. APA 7th edition referencing conventions in both in-text referencing and the reference list are used but there are inconsistencies.</p>	<p>A satisfactory range of literature from varied sources, some of which are not credible or relevant, have been referred to reflection. Attempt made to adhere to APA 7th edition referencing conventions in both in-text referencing and the reference list, but with some errors and inconsistencies.</p>	<p>Literature from sources is, largely irrelevant, not credible, or tenuously related to the topic OR no literature is used to support reflective. Adherence to APA 7th edition referencing conventions in both in-text referencing and the reference list is minimal or non-existent.</p>
<p>Format and presentation</p> <p>2 marks</p>	<p>Response shows strong evidence of synthesis of ideas presented and insights gained throughout the entire project. The implications of these insights for the learners overall consulting experience are thoroughly detailed, as applicable.</p>	<p>Reflection shows evidence of synthesis of ideas presented and insights gained throughout the entire project. The implications of these insights for the learner's overall consulting experience are presented, as applicable.</p>	<p>Response shows some evidence of synthesis of ideas presented and insights gained throughout the entire project. Few implications of these insights for the learner's overall consulting experience are presented, as applicable.</p>	<p>Response shows little evidence of synthesis of ideas presented and insights gained throughout the entire project. Few implications of these insights for the learner's overall consulting experience are presented, as applicable.</p>	<p>Response shows no evidence of synthesis of ideas presented and insights gained throughout the entire project. No implications for the learner's overall consulting experience are presented, as applicable.</p>

4 Submission and return of assessment

4.1 Submission of assessment

- All assessments are submitted through Learn Ultra.
- In the case where a disruption to studies application is approved, the student may be offered an alternative assessment or may receive a mark based on the percentage mark achieved by the student in one or more other assessment tasks, at the unit convenor's discretion.

Note that the [Learning, Teaching and Assessment Policy](#) (5.22.3) outlines a uniform formula of penalties that will be imposed for submission of an assessment task after the due date. **This formula is 5% of the total possible marks for the assessment item per day including part-days, weekends and public holidays.** After 20 days, the assessment item thus would be awarded 0 marks (i.e. $5\% \times 20 = 100\%$ of total possible marks in penalties).

4.2 Return of assessment

Feedback on marked assessments will be available in the Gradebook in Learn Ultra.

It is the responsibility of students to view their marks for each within-session assessment on Learn JCU within 20 working days of posting. If there are any discrepancies, students must contact the unit convenor immediately. Failure to do so will mean that queries received after the release of final results regarding assessment marks (not including the final exam mark) will not be addressed.

Please see the [Current Students](#) web page for links to all student resources and support services to optimise your academic and personal success.

Please see the [Learn Student Guide](#) web page for general advice on plagiarism, referencing and examinations. Here, you can also access individual and group assessment task cover sheets. Note that cover sheets are only required for hard copy submissions.

5 Subject calendar

Please note, the sequence of some topics may change due to staff availability, resourcing, or due to unforeseen circumstances.

Week/Date/Module		Topics covered	Collaborate tutorial session	Assessments
0	Orientation	<ul style="list-style-type: none"> Group project selection 		
1	Introduction to data science consulting	<ul style="list-style-type: none"> Topic 1: Introduction to data science consulting Topic 2: Forming the team 	<ul style="list-style-type: none"> Week 1: Thursday, 07:00pm AEST, 2019 Location: LearnJCU – Subject Room Meet & Greet session with stakeholders. Date and time to be announced by tutors. 	
2	Initiation and discovery, design and dialogue	<ul style="list-style-type: none"> Topic 1: Initiation Topic 2: Data collection and discovery 	<ul style="list-style-type: none"> Week 2: Thursday, 07:00pm AEST, 2019 Location: LearnJCU – Subject Room 	<ul style="list-style-type: none"> Assessment task 1: Problem scoping [15%] Individual Due 11.59 pm Sunday, Week 2 (22/03/2020)
3	Strategy, client resistance and value chains	<ul style="list-style-type: none"> Topic 1: Discovery – through hypothesis testing Topic 2: Client resistance Topic 3: The value chain and managing profit 	<ul style="list-style-type: none"> Week 3: Thursday, 07:00pm AEST, 2019 Location: LearnJCU – Subject Room 	<ul style="list-style-type: none"> Assessment task 2: Preliminary executive report [25%] Group Due, 11.59 pm Sunday, Week 3 (29/03/2020)

Week/Date/Module		Topics covered	Collaborate tutorial session	Assessments
4	Recommendations & implementation	<ul style="list-style-type: none"> Topic 1: Recommendations Topic 2: Structured presentations 	<ul style="list-style-type: none"> Week 4: Thursday, 07:00pm AEST, 2019 Location: LearnJCU – Subject Room 	
5	Building your data science network	<ul style="list-style-type: none"> Topic 1: Building your data science network 	<ul style="list-style-type: none"> Week 5: Thursday, 07:00pm AEST, 2019 Location: LearnJCU – Subject Room 	<ul style="list-style-type: none"> Assessment task 3a: Final executive report [30%] Group Due 11.59 pm Wednesday, Week 6 (15/04/2020) Assessment task 3b: Presentation and Q&A session [15%] Group Due, 11.59 pm Sunday, Week 3 (29/03/2020)
6	Ongoing professional development	<ul style="list-style-type: none"> Topic 1: Ongoing professional development 	<ul style="list-style-type: none"> Week 6: Thursday, 07:00pm AEST, 2019 Location: LearnJCU – Subject Room 	<ul style="list-style-type: none"> Assessment task 4: Reflection [15%] Individual Due 11.59 pm Wednesday, Week 7 (22/04/2020)

References:

- Biggs, J. & Tang, C. (2009) *Teaching for Quality Learning at University* (3rd ed.). Open University Press.
- Donovan, S., Bransford, J., & Pellegrino. (1999). *How People Learn: Bridging Research and Practice*. National Academy of Sciences.
- Race, P. (2007) *The Lecturer's Toolkit: A Practical Guide to Assessment, Learning and Teaching* (3rd ed.). Routledge.