



# COIS13013 *Business Intelligence*

## Term 1 - 2024

Profile information current as at 29/04/2024 09:27 pm

All details in this unit profile for COIS13013 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

## General Information

### Overview

The application of business intelligence and analytics have transformed the way in which organisations operate. Through the use of business intelligence and analytics tools, organisations are able to better understand how their businesses are performing, make well-informed decisions that improve business performance and create new strategic opportunities for growth. This unit equips you with the knowledge of various business intelligence concepts, tools and analytical techniques that organisations use for improving their decision making and to achieve competitive advantage. You will learn about the role of various information systems (Management Support Systems, Decision Support Systems, Knowledge-Based Systems, Group Support Systems) and how they are integrated at the enterprise level to support decision making. In this unit, you will specifically learn about data mining, data visualisation, text and web analytics and use a data mining tool to classify and analyse data.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 3*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Pre-requisites: (COIT12203 Workflow Analysis & Management and COIT11240 Dashboard Design and Visualisation) OR (COIT12203 Workflow Analysis & Management and HRMT11010 Organisational Behaviour).

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

### Offerings For Term 1 - 2024

- Brisbane
- Melbourne
- Online
- Rockhampton
- Sydney

### Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

### Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

## Class and Assessment Overview

### Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

### Class Timetable

#### [Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

#### [Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

### Assessment Overview

#### 1. **Written Assessment**

Weighting: 30%

#### 2. **Written Assessment**

Weighting: 40%

#### 3. **Group Work**

Weighting: 30%

### Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

## CQUniversity Policies

**All University policies are available on the [CQUniversity Policy site](#).**

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

## Previous Student Feedback

### Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

#### Feedback from Students and teaching staff's feedback

**Feedback**

The Visual DSS is a complex tool to implement decision-making practices. More guidance and practices could be provided

**Recommendation**

Review the lab exercises that use the Virtual DSS tool and enhance guidance by incorporating additional exercises alongside recorded tutorial videos.

#### Feedback from Teaching team's feedback

**Feedback**

Some tutorial exercises and lab practices should be adjusted to align with the updated lecture slides

**Recommendation**

Review the tutorial material and refresh the existing exercises/practices to align with the updated textbook and the lecture slides.

#### Feedback from Student feedback and Unit Coordinator reflection

**Feedback**

Online students find it difficult to attend workshops during the day due to work commitments

**Recommendation**

Conduct online workshops in the evenings or afternoons.

## Unit Learning Outcomes

**On successful completion of this unit, you will be able to:**

1. Apply the principles of decision theory to interpret the needs of decision-makers
2. Analyse the needs of computerised support for managerial decision making and business performance reporting
3. Evaluate the roles, trends and impacts of various business intelligence and analytics tools in organisations
4. Analyse the technological architecture required for building business intelligence systems in organisations
5. Evaluate the importance of data analysis, data processing and visualisation
6. Apply business intelligence and analytics software tools to solve real-world problems and interpret results.

Australian Computer Society (ACS) recognises the Skills Framework for the Information Age (SFIA). SFIA is in use in over 100 countries and provides a widely used and consistent definition of ICT skills. SFIA is increasingly being used when developing job descriptions and role profiles.

ACS members can use the tool MySFIA to build a skills profile at

<https://www.acs.org.au/professionalrecognition/mysfia-b2c.html>

This unit contributes to the following workplace skills as defined by SFIA. The SFIA code is included:

- Analytics (INAN)
- Business Analysis (BUAN)
- Data Analysis (DTAN)
- Data Visualisation (VISL)

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



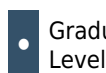
N/A  
Level



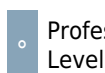
Introductory  
Level



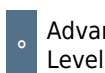
Intermediate  
Level



Graduate  
Level



Professional  
Level



Advanced  
Level

## Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
1 - Written Assessment - 30%	•	•		•	•	
2 - Written Assessment - 40%	•	•	•			•
3 - Group Work - 30%			•	•	•	•

## Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
1 - Communication	•	•	•	•	•	•
2 - Problem Solving	•	•		•	•	•
3 - Critical Thinking	•	•	•	•	•	•
4 - Information Literacy	•	•	•	•	•	•
5 - Team Work	•	•	•		•	•
6 - Information Technology Competence	•	•		•		•
7 - Cross Cultural Competence						
8 - Ethical practice			•			
9 - Social Innovation						
10 - Aboriginal and Torres Strait Islander Cultures						

## Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Written Assessment - 30%	•	•	•	•	•	•				
2 - Written Assessment - 40%	•	•	•	•	•	•		•		
3 - Group Work - 30%	•	•	•	•	•	•		•		

## Textbooks and Resources

### Textbooks

COIS13013

#### Supplementary

#### **Analytics, Data Science, & Artificial Intelligence: Systems for Decision Support**

11th Global Edition (2020)

Authors: Ramesh Sharda, Dursun Delen and Efraim Turban

Pearson

London, England

ISBN: 9781292341552

Binding: Paperback

[View textbooks at the CQUniversity Bookshop](#)

### IT Resources

**You will need access to the following IT resources:**

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- WEKA (Version: 3.8.1 – 64 Bit)
- Microsoft Power BI Desktop (Version: 2.53.4954.621 – 64 Bit)
- Tableau Desktop (Version 2019.4.1) (optional)

## Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Yufeng Lin** Unit Coordinator

[y.lin@cqu.edu.au](mailto:y.lin@cqu.edu.au)

## Schedule

### Week 1 - 04 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Overview of Business Analytics and Intelligence	Chapters 1 and 14	

### Week 2 - 11 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Decision-Making with AI Support	Chapters 2 Additional learning resources will be made available.	

### Week 3 - 18 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Data Stack (Generation, Processing, and Storage) for Business Analytics	Learning materials will be accessible through the Moodle unit website.	

### Week 4 - 25 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
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Business Reporting and Visual Analytics Chapter 3  
Extra learning materials will be provided.

#### Week 5 - 01 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Predictive Analytics with Data Mining	Chapter 4	

#### Mid-term break - 08 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
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#### Week 6 - 15 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Machine/Deep-learning and Analysis of Unstructured Data	Chapter 5, 6 and 7	<b>Assignment 1: Analytical Insights: Decision Making through Visual Analytics - A Case Study Exploration</b> Due: Week 6 Monday (15 Apr 2024) 11:45 pm AEST

#### Week 7 - 22 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Prescriptive Analysis: Optimisation and Simulation	Chapter 8	

#### Week 8 - 29 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Dashboard Design, and Performance Management	Learning materials will be provided via Moodle unit website.	

#### Week 9 - 06 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Group Decision Making and Knowledge Systems	Chapters 11 and 12	

#### Week 10 - 13 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Emerging Trends and Future Impacts	Chapter 14	<b>Assignment 2: Modeling, Data Mining and Dashboard Design</b> Due: Week 10 Friday (17 May 2024) 11:45 pm AEST

#### Week 11 - 20 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Workshop 1: Business Analytics Case Study	Learning materials will be provided, and group discussions will be arranged.	

#### Week 12 - 27 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Workshop 2: Business Intelligence Application Scenarios	Presentations and group discussions will be arranged.	

#### Review/Exam Week - 03 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic
		<b>Assignment 3: Groupwork on Business Intelligence Development and Implementation</b> Due: Review/Exam Week Friday (7 June 2024) 11:45 pm AEST

## Term Specific Information

There will be two online workshops scheduled for this unit in Weeks 11 and 12. All students and teaching staff are required to participate in both workshops via designated Zoom meetings, featuring guest researchers and experts from BI companies and relevant industries.

For any query, please get in touch with the unit coordinator through email: Dr Yufeng Lin <y.lin@cqu.edu.au>

## Assessment Tasks

### 1 Assignment 1: Analytical Insights: Decision Making through Visual Analytics - A Case Study Exploration

#### Assessment Type

Written Assessment

#### Task Description

There are three parts in Assignment 1:

- The first part is related to a business intelligence (BI) case study. You are required to write a short report from a given BI application scenario.
- The second part is related to decision-making for business investment. You are required to generate models and derive solutions for making decisions on business investment.
- The third part is related to data and information visualisation. You are required to generate data visualisation by using Power BI to conduct business analytics.

More details will be provided on the unit website.

#### Assessment Due Date

Week 6 Monday (15 Apr 2024) 11:45 pm AEST

Late submissions are subject to the university's late submission penalty policies.

#### Return Date to Students

Week 8 Monday (29 Apr 2024)

Assessments will be returned through Moodle website. Late submissions with or without extension approvals may be returned after the above date.

#### Weighting

30%

#### Assessment Criteria

Your assessment will be marked according to the following aspects:

- Discussion on your understanding of business intelligence and analytics.
- Appropriate use of BI tools for generating models and deriving business solutions
- Data visualisation and visual analytics

You will be assessed on your responses regarding accuracy, clarity, and suitability for the given contexts. See the unit website for more details.

#### Referencing Style

- [Harvard \(author-date\)](#)

#### Submission

Online

#### Submission Instructions

This assignment should be attempted and submitted individually.

#### Learning Outcomes Assessed

- Apply the principles of decision theory to interpret the needs of decision-makers
- Analyse the needs of computerised support for managerial decision making and business performance reporting
- Analyse the technological architecture required for building business intelligence systems in organisations
- Evaluate the importance of data analysis, data processing and visualisation

## Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence

## 2 Assignment 2: Modeling, Data Mining and Dashboard Design

### Assessment Type

Written Assessment

### Task Description

There are three parts in Assignment 2:

- The first part is related to data processing, modeling and analysis, and automated decision support systems. Students are required to do some modeling and analysis for building an automatic decision support system.
- The second part is related to data mining. Students are required to use a specific data mining tool to generate a classification tree and provide a summary of the classification result.
- The third part is related to the descriptive analytics information management tool (Dashboard) that visually tracks, analyses, and displays key performance indicators (KPI), metrics, and so forth to monitor the overall business performance. Students are required to design/discuss a business intelligence dashboard to facilitate decision-making.

More details will be provided on the unit website.

### Assessment Due Date

Week 10 Friday (17 May 2024) 11:45 pm AEST

Late submissions are subject to the university's late submission penalty policies.

### Return Date to Students

Week 12 Friday (31 May 2024)

Assessments will be returned through Moodle. Late submissions with or without extension approvals may be returned after the above date.

### Weighting

40%

### Assessment Criteria

Your second assignment will be marked according to the following aspects:

- Data modeling and analysis, automated decision support system discussion
- Appropriate use of data mining tools for data analysis
- A case study on information visualisation and analysis

You will be assessed on your responses regarding accuracy, clarity, and suitability for the given contexts. See the unit website for more details.

### Referencing Style

- [Harvard \(author-date\)](#)

### Submission

Online

### Submission Instructions

This assignment should be attempted and submitted individually.

### Learning Outcomes Assessed

- Apply the principles of decision theory to interpret the needs of decision-makers
- Analyse the needs of computerised support for managerial decision making and business performance reporting
- Evaluate the roles, trends and impacts of various business intelligence and analytics tools in organisations
- Apply business intelligence and analytics software tools to solve real-world problems and interpret results.

## Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking



- Information Literacy
- Team Work
- Information Technology Competence
- Ethical practice

## 3 Assignment 3: Groupwork on Business Intelligence Development and Implementation

### Assessment Type

Group Work

### Task Description

In this group assignment (the group size is to be three, although variations may need to be made by the tutor depending on the class size), your group is required to draft a report which describes the achievement of data analysis modelling on a specific business project with the application of business intelligence. The case study or scenario can be from any BI application area. The report will demonstrate a framework of business analytics and intelligence in a specific business intelligence application area. A presentation will be required to show your understanding of BI or the specific technologies used to build BI applications.

### Assessment Due Date

Review/Exam Week Friday (7 June 2024) 11:45 pm AEST

Late submissions are subject to the university's late submission penalty policies.

### Return Date to Students

Assessments will be returned on the Certification date (required for the unit without an exam).

### Weighting

30%

### Assessment Criteria

Your third assignment will be marked according to the following aspects:

- Introduction of the chosen BI application scenario
- The business analytics framework
- How to apply artificial intelligence to the business analytics model
- Presentation slides
- Presentation (a recorded video provided by each online group)

Your group will be assessed on the responses regarding teamwork, accuracy, clarity, and suitability for a chosen BI application. See the unit website for more details.

### Referencing Style

- [Harvard \(author-date\)](#)

### Submission

Online Group

### Submission Instructions

This assignment should be attempted as a teamwork and only one of you are requested to submit the assignment for your group.

### Learning Outcomes Assessed

- Evaluate the roles, trends and impacts of various business intelligence and analytics tools in organisations
- Analyse the technological architecture required for building business intelligence systems in organisations
- Evaluate the importance of data analysis, data processing and visualisation
- Apply business intelligence and analytics software tools to solve real-world problems and interpret results.

### Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence
- Ethical practice

## Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

### What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

### Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

### Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

### What can you do to act with integrity?



#### Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



#### Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



#### Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem