

# ICT110 Introduction to Data Science

**School:** School of Science, Technology and Engineering

2023 | Semester 1

UniSC Sunshine Coast  
UniSC Moreton Bay

**BLENDED  
LEARNING**

Most of your course is on campus but you may be able to do some components of this course online.

Online

**ONLINE**

You can do this course without coming onto campus.

Please go to [usc.edu.au](http://usc.edu.au) for up to date information on the teaching sessions and campuses where this course is usually offered.

## 1. What is this course about?

### 1.1. Description

Data used to be the new oil, now it is the new soil because it is what businesses use to grow. Data is the underlying driver of the knowledge economy and unlike oil, can be used over and over again to extract value for businesses. This class is an introduction to the practice of data science. You will learn skills in data collection, representation, storage, analysis, and visualisation. In addition, you will learn the impact of business analytics and big data on business performance. The course helps you to combine technical and statistical skills, analytical thinking, and business acumen.

### 1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
<b>BLENDED LEARNING</b>			
<b>Learning materials</b> – Pre-recorded concept videos and associated activity	1hr	Week 1	13 times
<b>Seminar</b> – On-campus interactive activity.	1hr	Week 1	Once Only
<b>Tutorial/Workshop 1</b> – In-class tutorial	1hr	Week 1	Once Only
<b>Tutorial/Workshop 2</b> – In-class tutorial	2hrs	Week 2	12 times
<b>ONLINE</b>			
<b>Learning materials</b> – Pre-recorded concept videos and associated activity	1hr	Week 1	13 times
<b>Seminar</b> – Scheduled interactive activity	1hr	Week 1	Once Only
<b>Tutorial/Workshop 1</b> – Interactive zoom tutorial	1hr	Week 1	Once Only
<b>Tutorial/Workshop 2</b> – Interactive zoom tutorial	2hrs	Week 2	12 times

### 1.3. Course Topics

Data and data science

Introduction to R

Data collection

Data storage and retrieval

Data quality and pre-processing

Exploratory data analysis

Descriptive data analysis

Predictive data analysis

Data visualisation

Data in business 1

Data in business 2

Cloud computing for data processing

## 2. What level is this course?

100 Level (Introductory)

Engaging with discipline knowledge and skills at foundational level, broad application of knowledge and skills in familiar contexts and with support. Limited or no prerequisites. Normally, associated with the first full-time study year of an undergraduate program.

## 3. What is the unit value of this course?

12 units

## 4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES		GRADUATE QUALITIES
On successful completion of this course, you should be able to...		Completing these tasks successfully will contribute to you becoming...
1	Use the foundational concepts related to data science.	Empowered
2	Apply statistical tools and software (R) to perform data analysis.	Knowledgeable Empowered
3	Discuss and demonstrate fundamental data science concepts.	Creative and critical thinker
4	Relate Data Science to solving business problems.	Creative and critical thinker
5	Illustrate knowledge and uses of modern data management and analysis strategies and techniques.	Knowledgeable

## 5. Am I eligible to enrol in this course?

Refer to the [UniSC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

### 5.1. Pre-requisites

Not applicable

### 5.2. Co-requisites

Not applicable

### 5.3. Anti-requisites

Not applicable

### 5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

## 6. How am I going to be assessed?

### 6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

### 6.2. Details of early feedback on progress

Early feedback will be formative. Comprehensive H5P learning guides have been developed for online learning. After each module there is a quiz that provides immediate feedback for students to assess their understanding of each module.

### 6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Examination - not Centrally Scheduled	Individual	20%	1 hour	Week 5	Online Test (Quiz)
All	2	Examination - not Centrally Scheduled	Individual	35%	2 hours	Week 9	Online Assignment Submission with plagiarism check
All	3	Artefact - Technical and Scientific, and Written Piece	Individual	45%	~1500 words	Exam Period	Online Assignment Submission with plagiarism check

#### All - Assessment Task 1: Exam

<b>GOAL:</b>	The purpose of this assessment is to apply foundation concepts of data storage, retrieval and analysis using hands-on tools.		
<b>PRODUCT:</b>	Examination - not Centrally Scheduled		
<b>FORMAT:</b>	Individual assessment to be undertaken independently. The exam is based on the content of Week 1 – 4. This task will help to build your knowledge of data formats, and retrieval and analysis techniques. Further details will be available on Canvas.		
<b>CRITERIA:</b>	<b>No.</b>		<b>Learning Outcome assessed</b>
	1	analysis and application of data retrieval methods	1
	2	analysis and application of data analysis techniques	2
<b>GENERIC SKILLS:</b>	Problem solving, Applying technologies		

### All - Assessment Task 2: Exam

<b>GOAL:</b>	The purpose of this assessment is to apply data processing skills. It engages a deeper understanding of the importance of data and information for business applications.	
<b>PRODUCT:</b>	Examination - not Centrally Scheduled	
<b>FORMAT:</b>	Individual assessment to be undertaken independently. The exam is based on the content of Week 1 – 9. This task will help to demonstrate your knowledge of data analysis techniques. Further details will be available on Canvas.	
<b>CRITERIA:</b>	<b>No.</b>	<b>Learning Outcome assessed</b>
	1 understanding of concepts and theories in data science	3
	2 define a business problem and present the data structure to solve the problem	4
	3 apply data processing skills to develop a deeper understanding of the data in a business context	5
<b>GENERIC SKILLS:</b>	Communication, Problem solving, Applying technologies, Information literacy	

### All - Assessment Task 3: Report

<b>GOAL:</b>	The purpose of this report is to apply your data processing skills to solve an abstract business problem and to make recommendations that meet business objectives.	
<b>PRODUCT:</b>	Artefact - Technical and Scientific, and Written Piece	
<b>FORMAT:</b>	This assessment will require you to write a report that analyses a data set and makes recommendations based on the data analysis. These recommendations should align with business objectives. Further details will be available on Canvas.	
<b>CRITERIA:</b>	<b>No.</b>	<b>Learning Outcome assessed</b>
	1 understanding of concepts and theories in data science	1 2
	2 analysis of data	3 4
	3 synthesis of relevant information	4 5
<b>GENERIC SKILLS:</b>	Communication, Problem solving, Applying technologies, Information literacy	

## 7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

## 8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

### 8.1. Prescribed text(s) or course reader

There are no required/recommended resources for this course.

### 8.2. Specific requirements

Not applicable

## 9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff.

## 10. What administrative information is relevant to this course?

### 10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

### 10.2. Assessment: Additional Requirements

#### Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

The final mark is in the percentage range 47% to 49.4%

The course is graded using the Standard Grading scale

You have not failed an assessment task in the course due to academic misconduct

### 10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate:

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.

- 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.

- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

### 10.4. SafeUniSC

UniSC is committed to a culture of respect and providing a safe and supportive environment for all members of our community. For immediate assistance on campus contact SafeUniSC by phone: [07 5430 1168](tel:0754301168) or using the [SafeZone](#) app. For general enquires contact the SafeUniSC team by phone [07 5456 3864](tel:0754563864) or email [safe@usc.edu.au](mailto:safe@usc.edu.au).

The SafeUniSC Specialist Service is a Student Wellbeing service that provides free and confidential support to students who may have experienced or observed behaviour that could cause fear, offence or trauma. To contact the service call [07 5430 1226](tel:0754301226) or email [studentwellbeing@usc.edu.au](mailto:studentwellbeing@usc.edu.au).

### 10.5. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the [Learning Advisers](#) web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or [studentcentral@usc.edu.au](mailto:studentcentral@usc.edu.au).

### 10.6. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to [Student Hub](#), email [studentwellbeing@usc.edu.au](mailto:studentwellbeing@usc.edu.au) or call 07 5430 1226.

## 10.7. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, [AccessAbility Services](#) can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to [Student Hub](#), email [AccessAbility@usc.edu.au](mailto:AccessAbility@usc.edu.au) or call 07 5430 2890.

## 10.8. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit <https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

## 10.9. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The [Student Charter](#) sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

## 10.10. General Enquiries

### In person:

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

**Tel:** +61 7 5430 2890

**Email:** [studentcentral@usc.edu.au](mailto:studentcentral@usc.edu.au)