



# COMP1350

## Introduction to Database Design and Management

Session 2, Special circumstance 2020

*Department of Computing*

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#### **Notice**

As part of [Phase 3 of our return to campus plan](#), most units will now run tutorials, seminars and other small group learning activities on campus for the second half-year, while keeping an online version available for those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face and online activities for your unit, please go to [timetable viewer](#). To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

# General Information

Unit convenor and teaching staff

Convenor and Lecturer

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Credit points

10

Prerequisites

Corequisites

Co-badged status

### Unit description

This unit introduces students to the principles and concepts of data storage, modelling and management with an emphasis on the role of data and information in organisations. The unit will cover conceptual modelling techniques, converting conceptual data models into relational data models and verifying its structural characteristics with normalisation techniques, and implementing and utilising a relational database using a database-management system. Fundamental data modelling techniques such as ER Modelling and query languages such as Structured Query Language (SQL) will be used. Concepts relating to data warehousing, governance, administration, security and privacy, ethical and green approaches to the collection, backup, use and storage of data and the construction of systems are also discussed. Overall, this unit concentrates upon building a firm foundation in information representation, organisation and storage with particular emphasis upon the application of database systems.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

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

**ULO1:** Analyse data requirements and design and develop conceptual database models.

**ULO2:** Implement system models into databases, design and create simple databases for business information systems and write programs to produce interactive queries.

**ULO3:** Use data analysis and data modelling techniques and tools for introductory level database design and specification

**ULO4:** Explain the role and nature of ethics and sustainability in the IT environment related to databases

## General Assessment Information

### ASSESSMENT PROCEDURE

A more detailed description of each task is given below.

### Weekly Quiz

Workshops are combined practicals and tutorials. Each week, you will receive a maximum of 0.5 marks for active participation in the class activities by attempting the online quiz for the corresponding week. Failure to attend the workshops will mean the marks for online quizzes will be made zero. The attendance in the workshops alone does not count towards any mark. There

are 13 weeks of workshops, however, the total participation mark is limited to 5 throughout the semester.

## Diagnostic Quiz

This quiz will be an individual assessment; You will be attempting an online quiz that will be conducted in week 3 in the workshop you've enrolled. You will be answering questions from concepts covered in weeks 1 and 2. This quiz aims to determine students' individual strengths, weaknesses, knowledge and skills to develop a baseline of what students know about the topic. You will have to attend the workshop you're enrolled in to attempt the quiz. No reattempts will be granted.

## Assignments

There are 2 assignments. Both assignments are individual assessments

1. The first assignment requires you to apply and develop your understanding of data modelling concepts and submit a professionally presented document demonstrating the use of data modelling skills. The document must be prepared using a standard word processor such as Word and diagrams can be either hand-drawn or created using a modelling tool/website.
2. The second assignment assesses your ability to construct a database and provide interactive queries using MySQL.

You are encouraged to:

- set your personal deadline earlier than the actual one;
- keep backups of all your important files;
- make sure that no-one else picks up your printouts.

If you cannot submit on time because of illness or other circumstances, please contact the convenor **before** the due date.

No extensions will be granted unless there is a special consideration approved. Late assignments will be accepted up to 72 hours after the submission deadline. There will be a deduction of 10%\* of the total available marks made from the total awarded mark for each 24 hour period or part thereof that the submission is late (for example, 25 hours late in submission – 20% penalty). This penalty does not apply for cases in which an application for disruption to studies is made and approved.

Assignment submission in this unit is NOT a hurdle requirement. However, if you do not make a reasonable attempt at all the assignments, you are unlikely to have sufficient knowledge to pass the exam or sufficient total marks to be able to pass the unit.

## Final Examination

For this unit, a final examination will test your learning and knowledge of learning outcomes #1, #2, #3 and #4. The final examination accounts for 50% of the final mark. A take-home exam will

test your knowledge of the concepts and ability to apply the learning material from weeks 1-12. If you receive [special consideration](#) for the final exam, a supplementary exam will be scheduled in December 2020. By making a special consideration application for the final exam you are declaring yourself available for a resit during the supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. Approved applicants will receive an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

Regarding the examination process, note that

- you must attend all required classes and submit all required assessment, otherwise the Executive Dean of the Faculty or delegated authority has the power to refuse permission to attend the final examination.
- the University Examination period in for Second Half Year is mid-November to mid-December.
- you are expected to present yourself for examination at the time and place designated in the [University Examination Timetable](#).
- the timetable will be available in Draft form approximately eight weeks before the commencement of the examinations and in Final form approximately four weeks before the commencement of examinations.
- no early examinations for individuals or groups of students will be set. All students are expected to ensure that they are available until the end of the teaching semester, that is the final day of the official examination period.
- the only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances, you may wish to lodge an application for special consideration.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Weekly Quiz</a>	5%	No	All Weeks (Weeks 1-13)
<a href="#">Diagnostic Quiz</a>	5%	No	Varies: During Week-3 Workshop
<a href="#">Assignment One</a>	20%	No	Week 7, 11/09/2020
<a href="#">Assignment Two</a>	20%	No	Week12 30/10/2020
<a href="#">Final Exam</a>	50%	No	See Exam Timetable

## Weekly Quiz

Assessment Type <sup>1</sup>: Participatory task

Indicative Time on Task <sup>2</sup>: 2 hours

Due: **All Weeks (Weeks 1-13)**

Weighting: **5%**

Online quizzes will be made available to students every week. The best 10 out of 13 marks will be taken into consideration. Please note, since these quizzes are replacing in-class participation, quiz marks will only be counted, if you attend the registered workshop.

On successful completion you will be able to:

- Analyse data requirements and design and develop conceptual database models.
- Implement system models into databases, design and create simple databases for business information systems and write programs to produce interactive queries.
- Use data analysis and data modelling techniques and tools for introductory level database design and specification
- Explain the role and nature of ethics and sustainability in the IT environment related to databases

## Diagnostic Quiz

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 2 hours

Due: **Varies: During Week-3 Workshop**

Weighting: **5%**

This quiz will be an individual assessment; You will be attempting an online quiz that will be conducted in Week 3 in the workshop you've enrolled. You will be answering questions covering concepts covered in Weeks 1 and 2. This quiz aims to determine students' individual strengths, weaknesses, knowledge and skills to develop a baseline of what students know about the topic

On successful completion you will be able to:

- Analyse data requirements and design and develop conceptual database models.
- Use data analysis and data modelling techniques and tools for introductory level database design and specification



## Assignment One

Assessment Type <sup>1</sup>: Design Task

Indicative Time on Task <sup>2</sup>: 27 hours

Due: **Week 7, 11/09/2020**

Weighting: **20%**

This assignment is an individual assignment. This assignment will involve both a top-down and a bottom-up approach in database modelling. You will be assessed based on the development of an EER diagram, logical transformation, and normalisation of tables for a given problem description.

On successful completion you will be able to:

- Analyse data requirements and design and develop conceptual database models.
- Use data analysis and data modelling techniques and tools for introductory level database design and specification

## Assignment Two

Assessment Type <sup>1</sup>: Programming Task

Indicative Time on Task <sup>2</sup>: 27 hours

Due: **Week12 30/10/2020**

Weighting: **20%**

This assignment is an individual assignment. This assignment will involve designing and executing database queries to demonstrate the knowledge of SQL. You will be assessed based on the successful execution of SQL queries for a given problem description

On successful completion you will be able to:

- Implement system models into databases, design and create simple databases for business information systems and write programs to produce interactive queries.

## Final Exam

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 20 hours

Due: **See Exam Timetable**

Weighting: **50%**

A take-home exam will test your knowledge of the concepts and ability to apply the learning material from weeks 1-12.

On successful completion you will be able to:

- Analyse data requirements and design and develop conceptual database models.
- Implement system models into databases, design and create simple databases for business information systems and write programs to produce interactive queries.
- Use data analysis and data modelling techniques and tools for introductory level database design and specification
- Explain the role and nature of ethics and sustainability in the IT environment related to databases

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<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

## Delivery and Resources

COMP1350 is taught via lectures and workshops. The feedback that you receive also plays an important role in your learning. Make sure you read the feedback you are given, attend lectures which provide assignment feedback and compare your solution with sample solutions provided.

Lectures are used to introduce new material, provide motivation and context for your study, guide you in what is important to learn and explain more difficult concepts.

Workshops are small group classes which give you the opportunity to interact with your peers and with a tutor who has a sound knowledge of the subject. This also gives you a chance to practice your technology skills.

You have many opportunities to seek and to receive feedback. During live lectures/consultation, you are encouraged to ask the lecturer questions to clarify anything you might not be sure of. You may also arrange to meet with your tutor or the lecturer or attend the consultation hours of any tutor. Each week, you will be given activities and problems to solve in workshops. Both assignments are individual submissions. The comments and the solutions provided will help you to understand the material in the unit, prepare you for the work in assignments as well as for the final exam. It is important that you keep up with these problems

every week. Assignments have been designed to deliver continuous feedback on your work.

Each week you should:

- Attend lectures, take notes, ask questions
- Attend your workshops and seek feedback from your tutor on your work
- Read assigned reading material (ideally before the lecture), add to your notes and prepare questions for your lecturer or tutor
- Start working on any assignments immediately after they have been released.

Lecture notes are made available each week but these notes are intended as an outline of the lecture only and are not a substitute for your own notes or reading of the textbook or other additional material.

## Classes

## Lectures

Each week you should attend two hours of lectures (or watch the recorded lecture), and a 2-hour workshop. For details of days, times and rooms consult the [timetables webpage](#).

**Note that workshops commence in week 1.**

## Resources to assist your learning

### iLecture

Digital recordings of lectures will be available through the web page of the unit on ilearn.

### Textbook

Various reading materials will be provided throughout the semester

### Technology

MS Word, LucidCharts/draw.io, MySQL Workbench

### Websites

The web page for this unit can be found at <http://ilearn.mq.edu.au/>

### Discussion Boards

The unit makes use of discussion boards hosted within iLearn. Please post questions of general interest there (for example, about assessment tasks), they are monitored by the unit staff but students may also provide answers.

## Unit Schedule

In the table below, for each week, the lecturer, the topics to be covered and the textbook references are given.

Week	Lecturer	Topic	Reading/Chapter
1	Yang	Introduction to unit and Conceptual Data Modelling	Online resources
2	Ramakrishnan	Conceptual Data Modelling	Online resources
3	Ramakrishnan	Conceptual Data Modelling	Online resources
4	Ramakrishnan	Conceptual Data Modelling+ Logical Modelling	Online resources
5	Ramakrishnan	Logical Modelling+ Normalisation	Online resources
6	Ramakrishnan	Logical Modelling+ Normalisation	Online resources
7	Ranjbartabar	SQL concepts	Online resources
8	Ranjbartabar	SQL concepts	Online resources
9	Yang	SQL concepts	Online resources
10	Yang	Database Application Development and Data Warehousing	Online resources
11	Yang	Data Quality and Green IT	Online resources
12	Yang	Big Data	Online resources
13	Ramakrishnan, Ranjbartabar & Yang	Revision, Exam Preparation	

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)

- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

Students seeking more policy resources can visit the [Student Policy Gateway](https://students.mq.edu.au/support/study/student-policy-gateway) (<https://students.mq.edu.au/support/study/student-policy-gateway>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/study/getting-started/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## Learning Skills

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

## Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.