



COMP1350

Introduction to Database Design and Management

Session 2, In person-scheduled-weekday, North Ryde 2022

School of Computing

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General Information

Unit convenor and teaching staff

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Lecturer and Tutor

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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

Late Assessment Submission Penalty

From 1 July 2022, Students enrolled in session-based units with written assessments will have the following university standard late penalty applied. Please see <https://students.mq.edu.au/study/assessment-exams/assessments> for more information. Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11:55 pm. A 1- hour grace period is provided to students who experience a technical concern.

For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, students need to submit an application for [Special Consideration](#).

Assessments where Late Submissions will be accepted In this unit, late submissions will be accepted as follows

- Assignment One – YES, Standard Late Penalty applies
- Assignment Two – YES, Standard Late Penalty applies
- Workshop Participation - NO, unless Special Consideration is Granted
- Diagnostic Quiz - NO, unless Special Consideration is Granted
- Module Exams - NO, unless Special Consideration is Granted

Assessment Tasks

Name	Weighting	Hurdle	Due
Workshop Participation	5%	Yes	Weeks 1-13
Diagnostic Quiz	5%	No	Week 3
Assignment One	20%	No	Week 6
Assignment Two	20%	No	Week 11
Module Exams	50%	No	Weeks 7, 12

Workshop Participation

Assessment Type ¹: Participatory task

Indicative Time on Task ²: 2 hours

Due: **Weeks 1-13**

Weighting: **5%**

This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)

In-class voluntary participation will be assessed for all the workshops during the session. Attendance alone does not count towards any mark. You will have to actively participate in the workshop activities assigned to you by your tutor.

NB. Since this is a hurdle assessment, in order to pass the unit you will be required to pass this assessment.

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 ¹: Quiz/Test

Indicative Time on Task ²: 2 hours

Due: **Week 3**

Weighting: **5%**

This quiz will be an individual assessment; You will be attempting an online quiz that will be conducted in the workshop. This quiz aims to determine students' individual strengths, weaknesses, knowledge and skills to develop a baseline of what students know about the topics

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 ¹: Design Task

Indicative Time on Task ²: 27 hours

Due: **Week 6**

Weighting: **20%**

This assignment is an individual assignment. This assignment will involve designing a database using a top-down approach. You will be assessed based on the development of an EER diagram, and logical transformation 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 ¹: Programming Task

Indicative Time on Task ²: 27 hours

Due: **Week11**

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.

Module Exams

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 20 hours

Due: **Weeks 7,12**

Weighting: **50%**

These closed-book tests will test your knowledge on the development of a conceptual model, logical transformation, and the normalisation of tables, SQL and advanced database concepts

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

¹ 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.

² 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

that provide assignment feedback and compare your solution with sample solutions.

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

Workshops are small group classes that allow you to interact with your peers and 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 receive feedback. During live lectures/consultations, 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 and prepare you for the work in assignments as well as for the module exams. 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 any textbook or other additional material.

Unit Schedule

In the table below, for each week, the lecturer and the topics to be covered are listed below. Online resources will be provided on iLearn

Week	Lecturer	Topic
1	Ramakrishnan	Introduction to unit and Conceptual Data Modelling
2	Ramakrishnan	Conceptual Data Modelling
3	Ramakrishnan	Conceptual Data Modelling
4	Ramakrishnan	Conceptual Data Modelling+ Logical Modelling
5	Ramakrishnan	Logical Modelling+ Normalisation

6	Ramakrishnan	Normalisation+SQL concepts
7	Alavi	SQL concepts
8	Alavi	SQL concepts
9	Alavi	Database Application Development
10	Alavi	Data Warehousing
11	Alavi	Data Quality
12	Alavi	Big Data & Green IT

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](https://policies.mq.edu.au) (<https://policies.mq.edu.au>). 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](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

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

To find other policies relating to Teaching and Learning, visit [Policy Central](https://policies.mq.edu.au) (<https://policies.mq.edu.au>) and use the [search tool](#).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/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 or if you are a Global MBA

student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

Student Support

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

The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the 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

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)

Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

IT Help

For help with University computer systems and technology, visit 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.