



COMP6350

Database Systems

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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Credit points

10

Prerequisites

Corequisites

Co-badged status

co-badged with COMP6350

Unit description

This unit provides an in-depth study of modern database technology and its dominant role in developing and maintaining enterprise information systems. The aim is to teach students how to program database applications. The emphasis is placed on business applications, using Structured Query Language (SQL) as an interactive and a programmatic language, on principles of the relational-database model, and on fundamental components of a client-server database-management system. Practical work involves the use of a commercial database-management system together with programming tools.

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: Demonstrate understanding of the basic concepts that underlie modern database management systems.

ULO2: Design and develop small, functional database applications using modern database design methods.

ULO3: Develop skills in using a industrial-strength database tools and interactive development environments for building databases.

ULO4: Complete different database programming tasks to specification using SQL

General Assessment Information

Assessment Deadlines

- Unless otherwise stated, assignments 1, 2, and 3 will be due on Sunday 11:55pm Sydney time of the week specified in the unit guide.
- A 1-hour grace period is provided to students who experience a technical concern.
- 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.

This assumes the calendar week starts on a Monday. Note that these are a deadline - not a goal - so don't aim for them. It is expected that students start early and iterate on their assessments. Submission boxes are open and allow for students to update their submission up until the assignment deadline. Note that there is a daylight savings change on Sunday in week 9 (2nd October).

A separate assignment box will be available for grace period submissions and late-penalty submissions during the submission window. No further submissions will be able to be made to the original assignment box submissions. If there is a submission in the grace period submission box / late-penalty submission box, this will be taken as the submission to be marked rather than the one in the original submission box.

Applying for special consideration? Be mindful of the following!

For assignment 1, 2, or 3: It is expected that you continue on your assignment while waiting a for special consideration application to be processed (unless the circumstances surrounding the special consideration are ongoing). Put in an ask.mq special consideration and mention whether it is for Assignment 1, Assignment 2, or Assignment 3.

For one of the quizzes: If you are ill, have respiratory symptoms (cold / flu), or need to isolate for covid-related reasons, there are two things to do here.

1: submit a special consideration request via Ask.mq and

2: notify the convenor via email once this has been submitted.

The convenor will be in touch via email to look at alternate arrangements based on the circumstances of the situation. In the special consideration application, mention whether it is for Quiz 1, Quiz 2, or Quiz 3.

For all other special consideration situations, apply through Ask.mq as soon as possible and email the convenor once it has been submitted.

For the final exam: If you are ill / have respiratory symptoms, or have to isolate due to covid related reasons (even on the day of the exam), or have any other circumstances listed in the special consideration provisions of the university policy, then submit an Ask.mq special consideration request and send an email to the unit convenor. If the special consideration is approved, then you will be notified of an alternate date to attempt a supplementary exam during the Faculty / University supplementary exam period. Please make yourself aware of when these dates are as they become available.

Assessment Tasks

Name	Weighting	Hurdle	Due
Online Quizzes	20%	No	Week 3, 7, and 11
Assignment 1	10%	No	Week 5
Assignment 2	10%	No	Mid Semester Break W2
Assignment 3	10%	No	Week 12
Final Examination	50%	No	Written exam scheduled during the exam period

Online Quizzes

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 10 hours

Due: **Week 3, 7, and 11**

Weighting: **20%**

There will be many quizzes over the semester to encourage engagement with and understanding of the material by the students.

On successful completion you will be able to:

- Demonstrate understanding of the basic concepts that underlie modern database management systems.
- Design and develop small, functional database applications using modern database design methods.
- Complete different database programming tasks to specification using SQL

Assignment 1

Assessment Type ¹: Modelling task

Indicative Time on Task ²: 10 hours

Due: **Week 5**

Weighting: **10%**

Assignment 1 will focus on conceptual modelling and logical design of databases.

On successful completion you will be able to:

- Demonstrate understanding of the basic concepts that underlie modern database management systems.
- Develop skills in using a industrial-strength database tools and interactive development environments for building databases.

Assignment 2

Assessment Type ¹: Design Implementation

Indicative Time on Task ²: 10 hours

Due: **Mid Semester Break W2**

Weighting: **10%**

Assignment 2 will assess students' ability to implement a relational database as well as querying that database.

On successful completion you will be able to:

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- Design and develop small, functional database applications using modern database design methods.
- Develop skills in using a industrial-strength database tools and interactive development

environments for building databases.

- Complete different database programming tasks to specification using SQL

Assignment 3

Assessment Type ¹: Programming Task

Indicative Time on Task ²: 15 hours

Due: **Week 12**

Weighting: **10%**

Assignment 3 will assess students' ability to enhance databases through procedural programming.

On successful completion you will be able to:

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- Design and develop small, functional database applications using modern database design methods.
- Develop skills in using a industrial-strength database tools and interactive development environments for building databases.
- Complete different database programming tasks to specification using SQL

Final Examination

Assessment Type ¹: Examination

Indicative Time on Task ²: 35 hours

Due: **Written exam scheduled during the exam period**

Weighting: **50%**

The Final examination will assess students' understanding of the fundamental concepts behind database management systems, and their skills in database programming and development. Students will be able to take the exam remotely.

On successful completion you will be able to:

- Demonstrate understanding of the basic concepts that underlie modern database management systems.
- Design and develop small, functional database applications using modern database

design methods.

- Complete different database programming tasks to specification using SQL

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

Classes

Each week during the semester you should set aside two hours for lectures, one hour for a tutorial class and one hour for a practical session. For details of days and times consult the timetables webpage at <https://timetables.mq.edu.au/2022/>. More specific information will be announced via the unit webpage on iLearn. Students are urged to actively participate in the tutorials; this helps enhancing the understanding by students.

Note that practicals and tutorials commence in week 2. You should have selected a practical session and a tutorial session during enrolment. You should attend the sessions you are enrolled in.

Required and Recommended Texts and/or Materials

Textbook

The textbook listed below cover much of the required material that will be used in preparation of lectures and/or assignments and/or practicals.

- Thomas Connolly and Carolyn Begg. [*Database Systems. A Practical Approach to Design, Implementation, and Management*](#), Sixth Edition, Pearson, 2015.

For some parts of learning, other necessary material will be made available on the unit iLearn site.

Leganto Resources

Unit reading details and breakdowns are available through the Leganto Block in the unit iLearn page.

Unit Webpage and Technology Used and Required

Digital recordings of lectures will be available on iLearn via tools such as Echo360 and Zoom.

Websites

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

Technology

In this unit you will be exposed to the following technology and tools

- MySQL - Database Management System
- MySQL Workbench - Data Modeling Software Tool

Discussion Boards

The unit will make use of discussion boards hosted within iLearn. Please post questions there, they will be monitored by the staff on the unit regularly.

Unit Schedule

1	Introduction to databases and their uses Introduction to the relational model	Connolly & Begg, Chapters 1,2,4 + lecturer-provided notes
2	Database modeling (ER modeling, EER modeling)	Connolly & Begg, Chapters 12-13
3	(Conceptual, logical, and physical) database design	Connolly & Begg, Chapters 16-17
4-6	Data manipulation and database normalisation	Connolly & Begg, Chapters 6, 14-15
7	Relational algebra and query optimisation	Connolly & Begg, Chapter 5

8-9	Database programming	Connolly & Begg, Chapter 8
10	Transaction management	Connolly & Begg, Chapter 22
11	Concurrency control and data recovery	Connolly & Begg, Chapter 22 + lecturer-provided notes
12	Data storage and management	Lecturer-provided notes
13	Revision	Lecturer-provided notes

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.

Changes from Previous Offering

Based on the feedback from the previous offerings, this offering is:

- adding more resources to support multiple modes of learning (online and f2f cohort)
- adding more practice quiz resources for students
- updating the assessment guidance and surfacing the link between assignments and the intended learning outcomes being demonstrated
- changing the tutorial mode to involve more group discussion and interaction while exploring database theory concepts, but keeping the separate tutorial hour and practical class hour for this offering.

This offering is only changing some of the items based on feedback from the previous offerings. Other items brought forward by students are being reviewed at the program / degree level and require further consultation before further adjustments are considered to address those items.