

# **Database Fundamentals**

**CSE4DBF**

## **SUBJECT LEARNING GUIDE**

**Teaching Period    Term 5 2023**

**Subject Coordinator**

**Lianhua Chi**

## SUBJECT DETAILS

<b>Subject Code:</b>	CSE4DBF
<b>Subject Title:</b>	Database Fundamentals
<b>Teaching Period:</b>	Term 5
<b>Location(s):</b>	Bundoora
<b>Credit Points:</b>	15
<b>Delivery Mode:</b>	Online
<b>AQF Level:</b>	8

## ENROLMENT REQUIREMENTS

<b>Prerequisites:</b>	Incompatible Subjects: CSE2DBF AND Students in the following courses are not permitted to enrol: SBCS, SBIT, SBCSGT, SVCSE, SZCSC, SBITP and SBBY
<b>Co-requisites:</b>	None
<b>Assumed Skills &amp; Knowledge:</b>	None
<b>Special Study Requirements:</b>	<p>Students with special needs whose participation in this subject might be limited by any study requirements are encouraged to consult the Equality and Diversity Centre (EDC).</p> <p>To contact the Centre:</p> <ul style="list-style-type: none"><li>• Telephone on (03) 9479 2900 (Melbourne); (03) 5444 7410 (Bendigo); (02) 6024 9628 (Albury-Wodonga)</li><li>• <b>National Relay Service Deaf and Hearing Impaired:</b> 133 677 (within Australia only)</li><li>• Email: <a href="mailto:equality@latrobe.edu.au">equality@latrobe.edu.au</a> or refer to the website.</li></ul>
<b>Additional subject requirements:</b>	Internet access. All resources are available online via the LMS.
<b>Class materials:</b>	All materials are available online via the LMS.

## STAFF CONTACTS

<b>Subject Coordinator:</b>	Lianhua Chi
<b>Email:</b>	<a href="mailto:l.chi@latrobe.edu.au">l.chi@latrobe.edu.au</a>
<b>Tel:</b>	May be available on request
<b>Location:</b>	NA
<b>Consultation time/s:</b>	Times by email and/or appointment

## ABOUT THIS SUBJECT

This subject aims to introduce basic relational database concepts. It starts with an overview of the architecture and management of database systems, and a discussion of different existing database models. The main focus includes relational database analysis, design, and implementation. The students learn:

relational conceptual design using an entity-relationship diagram (ERD, Oracle SQL Developer Data Modeler is utilised to build ERDs); relational logical database design (mapping ERDs); relational algebra as the formal foundation of relational databases; and SQL implementation of relational database queries.

Students will also learn advanced normalisation theory and the techniques to remove data anomalies and redundancies. In this subject, students are required to design a database application that meets the needs of a system requirement specification, and to implement the system using a commercial standard database system such as ORACLE or POSTGRESQL (Oracle Application Express APEX is utilised to provide practical, hands-on, engaging activities). Leveraging project-based learning techniques, students will create and work with projects which challenge them to design, implement, and demonstrate a database solution for a business or organisation.

### SUBJECT INTENDED LEARNING OUTCOMES (SILOs)

Upon successful completion of this subject, you should be able to:

1. Design a relational database using an ER or EER diagram and use a transformation process to map the ER or EER diagram to a relational database design.
2. Evaluate database design in terms of data anomalies and redundancies by applying the appropriate normalization techniques.
3. Implement database systems using SQL and advanced PL/SQL including stored procedures and triggers.
4. Explain the underlying model of relational database operations using relational algebra.
5. Evaluate the possible risks and ethical and social considerations relevant to designed systems.

### GRADUATE CAPABILITIES (GC)

GC	GC Point
Communication	Midpoint
Inquiry and Analysis	Midpoint
Personal and Professional	Midpoint
Discipline Knowledge and Skills	Midpoint

### LEARNING ACTIVITIES

Timetable details are available at <https://www.latrobe.edu.au/students/your-course/timetables>. Students should also regularly check this subject's LMS site for updated information.

Session	Date	Learning Activities	Contact hours
1	Monday 18 September 2023	Introduction to databases	3
2	Monday 25 September 2023	ER/EER modelling and transformation	3

3	Monday 2 October 2023	Normalisation and data manipulation using relational algebra	3
4	Monday 9 October 2023	Structured Query Language (SQL)	3
5	Monday 16 October 2023	SQL practice week	3
6	Monday 23 October 2023	PL/SQL	3
7	Monday 30 October 2023	Assessment 4 preparation and submission	
		<b>Total</b>	18

<b>Details of any self-allocation activities</b>
N/A

### SELF-DIRECTED STUDY

In addition to the learning activities specified, you are expected to allocate approximately **15 hours per week of self-directed study in this subject**. This time includes subject preparation, completing learning activities, readings, assessment preparation and other related work to enhance your participation in this subject and your learning at La Trobe.

### LEARNING RESOURCES & TECHNOLOGIES

Resource Type	Title	Author and Year	Publisher
<b>Required</b>			
All materials are available online via the LMS.			
<b>Recommended</b>			
All materials are available online via the LMS.			

## ASSESSMENT AND FEEDBACK SUMMARY

Week/ session	Date due	%	Assessment	Feedback method	SILOs assessed
Week 2	Sunday, 1 October 2023 by 23.59 (Melbourne time)	10	Assignment 1: Quiz	Automated feedback upon submission of answers.	1
Week 4	Due Sunday, 15 October 2023 by 23.59 (Melbourne time)	30	Assignment 2: Build EER diagram	Within 2 weeks	1, 5
Week 6	Due Sunday, 22 October 2023 by 23.59 (Melbourne time)	20	Assignment 3: Quiz	Automated feedback upon submission of answers.	2, 4, 5
Week 7	Due Sunday, 5 November 2023 by 23.59 (Melbourne time)	40	Assignment 4: SQL and PL/SQL Implementations	Within 4 weeks	3, 5

### Additional information about assessment & feedback

Students should keep a copy of all assignments submitted for assessment.

## HURDLE REQUIREMENTS

There are a variety of assessment hurdles or conditions for passing a subject other than the overall mark. **Hurdle Requirements** may be built into the assessment of the learning outcomes of your subject.

**There are no Hurdle Requirements for this subject.**

## GENERAL ASSESSMENT REQUIREMENTS

### SUBMITTING WRITTEN WORK WITH TURNITIN

**Turnitin** is a web-based text-matching software system used at La Trobe University to assist you in writing your assignments and checking for similarity with existing published work. Please remember to allow adequate time to submit your assignment to Turnitin. **It is your responsibility to have your assignment submitted by the assessment due date.** Not receiving an originality report is not an acceptable reason for requesting an assignment extension unless it is a required part of the assessment.

## POLICIES, PROCEDURES AND GUIDELINES

The University has a comprehensive policy framework to which both staff and students must adhere. You should familiarise yourself with those policies, procedures and guidelines likely to affect you especially the following:

- [Academic Integrity](#)
- [Academic Progress Review](#)
- [Assessment Policy](#)
- [Adjustments to Assessment](#), including extensions to submission dates and Special Consideration
- [Health and Safety](#) (OHS)
- [Privacy](#)
- [Validation and Moderation](#), including applications for review and re-mark

## ADJUSTMENTS FOR ASSESSMENT

You may be affected by a range of adverse circumstances while you are preparing for or undertaking an assessment task. There are avenues for adjustments to your assessment depending on the circumstances you face. For more detailed information refer to the [Assessment Procedure – Adjustments](#).

## REQUEST AN EXTENSION OF TIME TO SUBMIT AN ASSIGNMENT TASK

Where you know in advance that you will not be able to submit an assessment task by the due date due to adverse circumstances that have affected you during the preparation of the task, you will need to [request an extension of time to submit](#). **This must be done at least three days prior to the due date.** Penalties normally apply if you submit an assessment after the due date. **Poor time management is not an acceptable reason for an extension.**

To apply, go to <https://www.latrobe.edu.au/students/admin/forms/request-an-extension/request>

## SPECIAL CONSIDERATION

If you have experienced serious short term, adverse and unforeseen circumstances that substantially affect your ability to complete an assessment task to the best of your potential, you may be eligible to apply for **Special Consideration**. To do this or find more information, go to <http://www.latrobe.edu.au/special-consideration>

## STUDENTS WITH A LEARNING ACCESS PLAN (LAP)

Students who have a Learning Access Plan must apply for any additional adjustments they may need via the same channels but may have access to more flexible arrangements depending on their circumstances. Please refer to your LAP.

## ACADEMIC INTEGRITY

Academic integrity means being honest in academic work and taking responsibility for learning the conventions of scholarship. Academic integrity education is integral to the learning experience at La Trobe University. The University requires its academic staff and students to observe the highest ethical standards in all aspects of academic work, and it demonstrates its commitment to these values by awarding due

credit for honestly conducted scholarly work, and by penalising academic misconduct and all forms of cheating.

The penalty for submitting an assignment under your name that is the work of a third-party may be severe, even leading to exclusion from the University without readmission. Refer to the **Academic Integrity - Schedule of Responses and Penalties for Academic Misconduct** within the [Academic Integrity Policy](#).

You should understand and be able to practice integrity in all your academic work, and be familiar with the [Academic Integrity website](#) and complete the **Academic Integrity Module (AIM)** found in your LMS.

If you have any specific questions regarding **Academic Integrity** about your assessment, your Subject or Course Coordinator will be able to assist.

## STUDENT FEEDBACK ON SUBJECT SURVEYS

The **Student Feedback on Subjects (SFS) Survey** is one of the quality assurance processes that occur across the University. In this survey, you can tell us about your learning experiences in this subject. We value your feedback. Your views are taken seriously and assist us to improve the learning experience for future students through the LTU Subject Monitoring process.

The surveys will be available for you to complete towards the end of the subject teaching period. Feedback from previous students who completed this subject is available in the LMS site for this subject.

For more information you may contact [surveys@latrobe.edu.au](mailto:surveys@latrobe.edu.au).

## CHARTER OF STUDENT RIGHTS AND RESPONSIBILITIES

As a La Trobe coursework student, you have rights and responsibilities. La Trobe statutes and regulations, as well as policies and procedures govern your rights and responsibilities. La Trobe University aspires to provide an outstanding student experience conducive to scholarly activity and supportive of your learning goals.

The **Charter of Student Rights and Responsibilities** is a summary of your rights and responsibilities as a student at La Trobe. The Charter was developed in consultation with La Trobe students.  
<https://policies.latrobe.edu.au/document/view.php?id=225>.

## STUDENT COMPLAINTS

The **Student Complaints Management System (SCM)** is a formal mechanism for students to lodge concerns about any aspect of their university experience. A student complaint may be about any aspect of university life, such as an administrative matter, a problem with a subject or course, or the conduct of a student or staff member.

For more information about the **Student Complaint process** and how to lodge a complaint, visit the **Complaints and Feedback** page at: <https://www.latrobe.edu.au/students/support/complaints>.

## GETTING HELP AND SUPPORT AT UNI

A range of services at La Trobe can assist you with your studies, health and wellbeing.

For the full range of services and facilities available for you, go to **Student Help and Support** at <http://www.latrobe.edu.au/students/support>.

## STUDYING ONLINE

When you are in studying an online subject, please be sure that you can continue to access our learning support services through the Learning Hub (academic skills, English language, Maths and Science) via Zoom appointments that you can book by accessing the [Learning Hub LMS page](#) or by emailing the [LearningHub@latrobe.edu.au](mailto:LearningHub@latrobe.edu.au).

You also have access to assignment feedback and online study support chat through Studiosity that can be accessed from any subject [LMS](#) page. You can also access the Library services remotely through [the library website](#).

## LIBRARY

Your **Library** offers many ways to support your study. To discover more about how the Library can help, visit your **Library website** and explore the following essential resources:

- **Achieve@Uni**  
<https://www.latrobe.edu.au/students/study-resources/learning/achieve> - Learn skills to help complete your assessments
- **Assessment Planner**  
<http://www.latrobe.edu.au/library/assessment-thesis-support/plan-my-assessment> – Create a personal assessment schedule
- **Expert Help Guides**  
<https://latrobe.libguides.com/> - Find expert discipline and specialist help for your research
- **Referencing at La Trobe University**  
<http://latrobe.libguides.com/referencing/> - Understand how and why to reference
- **Academic Referencing Tool**  
[www.lib.latrobe.edu.au/referencing-tool](http://www.lib.latrobe.edu.au/referencing-tool) - Get detailed examples of referencing styles
- **Chat to library staff**  
[www.latrobe.edu.au/library](http://www.latrobe.edu.au/library) - Access the text chat service from the Library website
- **Contact us**  
[www.latrobe.edu.au/library/about/contact](http://www.latrobe.edu.au/library/about/contact) - Call or email your Library

## ASK LA TROBE

**ASK La Trobe** is a service open to all La Trobe students who need guidance with administrative matters during their time at La Trobe. ASK La Trobe can provide you with help relating to enrolments and timetabling, fees and financial support, exams, results and graduations & student life and support services.

Go to **ASK La Trobe— Current Students** at <http://latrobe-current.custhelp.com/app/home> and start by looking at our **FAQs** or visit us at your campus **ASK La Trobe Help Zone**.

**If you can't find what you're looking for:**

- **Call** 1300 La Trobe (1300 528 762)
- **Ask a question** online at <http://latrobe-current.custhelp.com/app/ask>



- **Visit the ASK La Trobe Help Zone.** Join the queue for the Bundoora, Bendigo or city campuses using the **QLess: Virtual Queuing system**.

## **LEARNING AND SUPPORT PROGRAMS**

There are many resources, including services, to help you with your academic studies at La Trobe. Go to the **Learning and Support Programs** page at <http://www.latrobe.edu.au/students/study-resources/learning> for further information.

## **HEALTH AND WELLBEING**

Your health and wellbeing are an important part of being a successful student. Studying can be stressful and many factors can affect your mental and physical health, in and outside of the University. Check out the services available to you at La Trobe to support your health and wellbeing at [www.latrobe.edu.au/wellbeing](http://www.latrobe.edu.au/wellbeing).