

Database Design 5915

Unit Outline 2009– Semester 1

Faculty of Information Sciences and Engineering

University of Canberra

*Australian Government Higher Education (CRICOS)
Registered Provider number: #00212K*

This Unit Outline must be read in conjunction with:

- a) *Studying at the University of Canberra: A Guide to Policies and Procedures*, which sets out University-wide policies and procedures, including information on matters such as plagiarism, grade descriptors, moderation, feedback and deferred exams, and is available at <http://www.canberra.edu.au/student-services>
- b) *Guide to Student Services at the University of Canberra*, and is available at <http://www.canberra.edu.au/student-services>
- c) Any additional information specified in section 6f.

1. General Information

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|----|----------------------------------|------------------|
| 1a | Unit title | Database Design |
| 1b | Unit number | 5915 |
| 1c | Semester and year offered | Semester 1/ 2009 |
| 1d | Credit point value | 3cp |
| 1e | Unit level | 1 |

1f Unit Convenor

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2: Academic Content

2a Unit description and learning outcomes

- i. **Syllabus:** This unit introduces a practical approach to the development and design of database systems. The emphasis is placed on relational database management systems, their development and implementation in a modern organisational environment. The use of modern query languages for relational databases is discussed and experienced. Conceptual, logical and physical database design issues are also covered. Other topics include client server database computing and database administration issues.
- ii. **Learning Outcomes:** Upon successful completion of this unit the students will be able to list, describe, and illustrate the steps in a database system development life cycle and illustrate the inputs and outputs in that process, with an emphasis on data modelling. Students will acquire data analysis skills and develop an appropriate set of data models for relational database implementation. The students will also be able to demonstrate the use of the SQL language in a database server environment.
- iii. **Graduate Attributes:** This unit primarily addresses the UC graduate attributes on
 - o **Information Literacy and Numeracy :** Graduates are expected to be able to locate, identify, collate, analyse, manipulate, evaluate, interpret and present information and numerical data
 - o **Information and Communication Technology:** Graduates are expected to be able to select and use appropriate information and communication technology to retrieve, manipulate and present information.
 - o **Problem Solving:** Graduates are expected to be able to
 - identify problems and analyse the main features of problems relevant to their professional field;
 - apply appropriate problem solving processes, arguments, critical and creative thinking;
 - o **Working With Others:** Graduates are expected to be able to:
 - work with others as part of a group;
 - take responsibility for carrying out agreed tasks;

- 2b **Prerequisites and/or co-requisites:**
Information Systems in Organisations (6348)

3: Delivery of Unit and Timetable

- 3a **Delivery mode** This unit will be delivered on campus with weekly lectures, tutorials and laboratory sessions, as per the timetable for this semester. There will be lectures for a total of three hours duration. There will be up to one hour of tutorial and one hour of laboratory each week as per the university timetable. Tutorial and laboratory exercises will be placed on the unit website, normally over the weekends. Solutions to tutorial and lab exercises will only be discussed during the scheduled tutorial/lab sessions. It is the responsibility of the students to take notes from the lecturer's presentations during the lectures. The lecturer will provide a dot point summary of the topics of lectures on the unit website (Lecture slides will not be provided on the website or in any other form). Many of the lectures are based on the textbook, which is the primary reference for the unit. Each student must enrol in a two-hour tut/laboratory session at the published time. These tutorials/lab sessions are designed to take advantage of adjusting time between the tutorial and labs

3b Tentative Schedule of topics/lectures/tutorials/practicals/field classes by week

Week	Lecture Topic	Tutorial/Labs	Other Activities
Week 1	Introduction to Database Systems	No tutorial and No Lab	Hard copies of Unit Outline in the lecture
Week 2	Database Concepts	Tut 1: Database Concepts Lab 1 : MS Access	
Week 3	Relational Models Entity Relationship Diagram (ERD)	Tut 2: Database Concepts Lab 2: MS Access,	
Week 4	Entity Relationship Diagram (ERD)	Tut 3: Relational and ER Concepts Lab 3: MS Access	Ass1 out
Week 5	Normalisation	Tut 4: ER exercise Lab 4: MS Access	
Week 6	Normalisation	Tut 5: Normalisation Lab 5: MS Access	
Week 7	Structured Query Language (SQL)	Tut 6: Normalisation exercise Lab 6: MS Access/SQL	Ass1 due Ass2 Out Formation of Ass2 Groups
Week 8	Non-Teaching Period		
Week 9	Non-Teaching Period		
Week 10	SQL Mid Semester Test	Tut 7: Ass2 explained/SQL Lab 7: SQL practice	Ass1 returned
Week 11	SQL Conceptual Design	Tut 8: SQL practice Lab 8: SQL practice/Ass2	
Week 12	Logical Design	Tut 9: Conceptual Lab 9: Ass2	Lab Folder Due
Week 13	Physical Design	Tut 10: Logical Lab 10: Ass2	
Week 14	Database Life Cycle	Tut 11: Physical Lab 11: Ass2	Ass2 due
Week 15	Unit Review	Tut 12: Database Life Cycle Lab 12: Individual Assessment	Ass2 returned

The above schedule is subject to changes. For an up-to-date schedule, please see unit website <http://teaching.canberra.edu.au/>

4: Unit Resources

4a Lists of required texts/readings

Textbook: Connolly, Thomas & Begg, Carolyn, 2004, 4th edition, Addison Wesley, Database Systems: A practical approach to design, implementation and management Addison-Wesley, Pearson Education

Supplementary Reading:

- Connolly, Thomas & Begg, Carolyn, 2004, 2nd edition, Addison Wesley, Database Systems: A step by step guide building databases, Addison-Wesley, Pearson Education
- Elmasri R & Navathe S B, 2003, 4th edition, Addison Wesley, An introduction of Database Systems
- Mark L. Gillenson, Paulraj Ponniah, Alex Kriegel, Boris M Trukhnou, Allen G Taylor, Gavin Powell, 2008, 1st edition, Wiley, An Introduction to database Management, Wiley Publishing Inc
- Gavin Powell, 2006, 1st Edition, Beginning Database Design, Wiley Publishing Inc
- Kifer M, Bernstein A & Lewis P M, 2004, 2nd Edition, Addison Wesley, Database Systems: An application-oriented approach

4c Unit website

The unit website is accessible at <http://learnonline.canberra.edu.au/>. The unit convener will update the unit website as and when required. Students are advised to regularly check the unit website for the latest information on the unit material and other information including announcements.

5: Assessment

5a Assessment overview

Assessment Item (including exams held in the exam period)	Due Date of Assignments	Weighting (total to equal 100%)
Assignment 1 (Individual)	FRI Week 07	20%
Mid Semester Test (Closed Book)	WED Week 10	15%
Assignment 2 (Group)	FRI Week 14	20%
Lab Folder (Individual)	FRI Week 12	10%
Final Examination (Closed Book)	Exam Timetable	35%

5b Details of each assessment item

Assignment 1

This assignment should be done by each student individually. It comprises of questions relating to database concepts, data modelling including Entity-Relationship Diagrams (ERD), relations (tables) and their keys and the normalisation of data for (relational) database systems.

Assignment 2

This assignment is a group assignment. Individual submissions for the second assignment are not acceptable unless authorised by the lecturer. In this assignment, students will design and implement a database system using a Database Management System (e.g. Microsoft Access). For this assignment, ideally, a group should consist of four students from the same tutorial group.

Lab Folder

This folder should contain the work done during the lab sessions (Weeks 2-11) by each student individually. The work should be labelled by each lab session and should contain a summary of the tasks, results and comments. It is expected that the students will complete each week's work in the same week and submit the lab folder by the deadline.

Mid Semester Test (MST)

The mid-semester test will be conducted during the lecture session in week 10. The syllabus and other details of this test will be outlined during the lectures.

Final Examination

The Final Examination will be a three-hour closed book examination and will be conducted according to the university examination timetable.

Assessment of your Individual participation in group-assignments

This unit uses a number of methods to determine individual participation of students for their group work. Based on the participation, individual marks in the same group of students may be different. Details of these methods will be provided in the instructions of the assignment.

5c Special assessment requirements

To pass this unit, you will need to satisfy the following conditions:

- a. Must achieve at least 50% as a combined total of the available marks of the two assignments; and
- b. Must achieve at least 50% of the Lab Folder marks; and
- c. Must achieve at least 50% as a combined total of the available marks of the Mid Semester Test and the Final Examination.

Once these conditions have been satisfied, grades will be awarded as per the following table:

Grade	Letter Grade	Weighted Marks
High Distinction	HD	85% - 100%
Distinction	D	75% - 84%
Credit	CR	65% - 74%
Pass	P	50% - 64%
Fail	NX	0% - 49%

In the case of any assessment item that places you in jeopardy of a Fail in the whole unit, appropriate moderation procedures will be used.

All assignments are required to be submitted on the due date. If for any reason you are unable to do an assignment by the due date you must submit, to the lecturer, a request for an extension in writing **well before** the due date (if possible) setting out in detail the genuine and exceptional reason for requesting the extension. If there is a medical reason for the extension request it must be accompanied by a medical certificate (see below).

Medical certificates: Your medical certificate must clearly state:

- That you were unfit to complete the assignment;
- The date of the medical consultation;
- The period during which you were / are / will be unfit; and
- The severity of your illness.

A late assignment, without prior approval of the lecturer, will incur a penalty of 10% of the total possible marks for that assignment, per day. A resubmitted assignment (if requested by your tutor/lecturer) can gain at most 55% of the total available marks for that assignment.

If there is any doubt with regard to the requirements of any particular assignments or assessment procedure, the onus for clarifying the issue rests with the student who should contact the lecturer about the matter. Tutors will also be happy to assist in this regard.

For the examination, students may take in a language dictionary (no calculators or technical dictionaries are permitted in the exam).

Referencing requirements:

All work quoted from other written sources should be appropriately referenced using the "author-date" (Harvard) style. This style is described in detail (including electronic sources) in the Citation Guide available at:

http://www.canberra.edu.au/library/research-gateway/research_help/referencing-guides

Other Requirements

1. Students should keep a copy of all assessment items that are submitted.
2. For submission of assignments, students must use the prescribed cover sheet and provide all the information required on the coversheet. The coversheet would be available on the unit website.
3. The lecturer reserves the right to question students orally on their submitted work
4. The assessment criterion for answers to theoretical and technical questions is both correctness and appropriate style.
5. The tutors will provide feedback to the students on their assignments. Solutions of the assignment questions will only be discussed in tutorials/lectures. Students are encouraged to seek individual feedback from the tutor.

5d Supplementary assessment

Not available in this unit.

5e Text-matching software

Students may be required to submit text-based assignments electronically to be checked for matching text. If so, instructions on how to do this and information about the process will be made available (by the supervisor) in conjunction with the first of any such assessment items.

6: Student Responsibility

6a Workload

The amount of time you will need to spend on study in this Unit will depend on a number of factors including your prior knowledge, learning skill level and learning style. Nevertheless, in planning your time commitments you should note that for a 3cp Unit the total notional workload over the fifteen-week semester is assumed to be 150 hours or an average of 10 hours per week. These hours include time spent in classes. The total workload for Units of different credit point value should vary proportionally. For example, for a 6cp Unit the total notional workload over a fifteen-week semester is assumed to be 300 hours or an average of 20 hours per week.

6b Special needs

Students who need assistance in undertaking the unit because of disability or other circumstances should inform their Unit Convener or the Disabilities Office as soon as possible so the necessary arrangements can be made

6c Attendance requirements

This unit will be delivered on campus with weekly lectures and tutorials/laboratory session, as per the timetable for this semester. For the successful outcome in this unit, students should attend all lectures, tutorial/laboratory sessions. A student not enrolling in a tutorial/lab session will be given a fail (NX) grade.

6d Required IT skills

This unit requires the skills of the learning outcomes of Information Systems in Organisations (6348).

6e Costs

You must consider the following costs: Textbook, Printing, Photocopying, Web Access, and Consumables.

6f Additional information

- 1) Announcements made in the class are deemed to be made to all students enrolled in the unit.
- 2) Feedback on progress may be provided to students in several ways:
 - Through comments to the class during briefing and lectures.
 - Through the unit web site – students should consult this regularly.
 - In written form on your assignments or in tutorials by the tutors
 - By email, where appropriate.
 - In individual consultation during the one-on-one sessions.
- 3) Students with a poor command of either written or spoken English will face difficulties in this unit. Overseas students with English problems are advised to contact the Overseas Program Unit, in Student Administration. The Academic Skills Program runs Study Skills Workshops for students with study problems (including English).
- 4) Any student having difficulty understanding this handout should contact the lecturer for clarifications. If you do not agree with the contents of this outline, you should consider withdrawing from this unit.

7: Student Feedback

All students enrolled in this Unit will have an opportunity to provide anonymous feedback on the Unit at the end of the Semester via the Unit Satisfaction Survey which will be presented to you on OSIS. Your lecturer or tutor may also invite you to provide more detailed feedback through an anonymous questionnaire administered through the University's Centre for the Enhancement of Learning Teaching and Scholarship (CELTS).

The results and comments of the students' feedback of S2 2008 are available on the unit website for you to have a look. As a result of this feedback, weighting for Assignment is increased from 15% to 20% and the weighting for Final Examination lowered from 40% to 35%.

8: Authority of this Unit Outline

Any change to the information contained in Section 2 (Academic content), Section 3 (Delivery of Unit and timetable) and Section 5 (Assessment) of this document, will only be made by the Unit Convener if the written agreement of staff and a majority of students has been obtained; and if written advice of the change is then forwarded to each student enrolled in the Unit at their registered term address. Any individual student who believes him/herself to be disadvantaged by a change is encouraged to discuss the matter with the Unit Convener.