

School of Information Management

**INFO 241 INTRODUCTION TO DATABASE MANAGEMENT
AND PROGRAMMING**

Trimester One 2011

COURSE OUTLINE

Names and Contact Details

Role	Name	Room	Phone	E-mail
Course Coordinator	Dr Flavio Ferrarotti	RH527	463 6857	flavio.ferrarotti@vuw.ac.nz
Senior Tutor	Ms Xiaoyi Guan	RH502	463 6998	xiaoyi.guan@vuw.ac.nz

Flavio is a Postdoctoral Fellow at the School of Information Management. His main research interests focus on database systems and their foundations. Flavio has extensive experience in developing Web and e-Commerce applications.

All questions related to the content of this course should be directed to Flavio. He is happy to answer relevant questions during or after lectures, via e-mail or in face-to-face meetings.

Please contact Xiaoyi if you have any enquiries regarding the administration of this course, including:

- record keeping and administrative queries,
- assessment queries, illness and extensions,
- workshop allocation and attendance, due dates, etc.

Questions about software applications and the practical techniques of database administration, querying and programming should be directed to the workshop instructors of the course, during the workshop.

Trimester Dates

Monday 28 February – Friday 3 June

Withdrawal from Course

- Your fees will be refunded if you withdraw from this course on or before 11 March 2011.
- The standard last date for withdrawal from this course is 14 May. After this date, students forced to withdraw by circumstances beyond their control must apply for

permission on an ‘*Application for Associate Dean’s Permission to Withdraw Late*’ including supporting documentation

The application form is available from either of the Faculty’s Student Customer Service Desks.

Class Times and Room Numbers

- *LECTURES: Tuesdays, 3:40pm – 4:30pm, Rutherford House LT1
Wednesday, 10:30am – 11:20am, Rutherford House LT1*
- *WORKSHOPS: 1 hour in each of the weeks 2-11, times and venues will be announced on Blackboard during the first week of lectures*

Course Content

A tentative schedule of lectures, readings and assessment components is illustrated in the following table. Notice that the course coordinator reserves the right to make changes during the trimester.

Week Date of Lecture	Lecture	Workshop	Readings
1 01 & 02 March	Introduction to Databases, Database Languages and Architectures		Ch 1 & Ch 2
2 08 & 09 March	The Relational Model	Workshop 1	Ch 3
3 15 & 16 March	SQL: Data Definition, Constraints, and Basic Queries and Updates	Workshop 2	Ch 4
4 22 & 23 March	More Complex SQL Queries	Workshop 3	Ch 5
5 29 & 30 March	Formal Relational Languages	Workshop 4	Ch 6
6 05 & 06 April	SQL Application Programming and SQL Web Programming	Workshop 5	Ch 12 & Ch13
7 12 & 13 April	Introduction to ER Modeling	Workshop 6	Ch 7
2 Weeks of Mid-trimester Break			
8 03 & 04 May	Advanced Data Modeling	Workshop 7	Ch 7
9 10 & 11 May	Mapping a Conceptual Design into a Logical Design	Workshop 8	Ch 8
10 17 & 18 May	Design Guidelines for Relational Schemas	Workshop 9	Ch 14
11 24 & 25 May	Database Design Theory: Introduction to Normalization	Workshop 10 / Lab Assignment (due 27/05)	Ch 14
12 31 May & 01 Jun	Database Security		Ch 25

Course Learning Objectives

Learning Objective	At the conclusion of this course students should be able to:	Graduate Attribute	Major Attributes
LO1	Use more complex data modelling techniques to design and develop databases for business applications.	LG1	MA3, MA5
LO2	Apply query language tools for efficient database development.	LG1	MA3
LO3	Design and develop programs, including effective user interfaces, for practical database applications.	LG1	MA3
LO4	Explain database administration and security issues.	LG1	MA6
LO5	Assess the importance of emerging topics.	LG1	MA4

Course Delivery

The delivery style of this course allows you to put into practice in the workshops the skills you are learning during the lectures and from the textbook. Weekly class tests will evaluate your understanding of the core principles that underlay modern database management systems. The lab assignment will test your ability to write complex SQL queries and applications that interact with the database through SQL. At the end of the course you should have the skills required to design, implement and administrate databases for small and medium enterprises. There is no final exam for this paper.

Expected Workload

You are expected to devote a minimum of 11 hours a week to this course. This is an average, and the workload is likely to vary from week to week during the trimester. As a guide you may choose to spend the following time on the following course components:

Lectures	2 hours
Workshops	1 hour
Reading & Understanding Course Notes and Reading Material	4 hours
Exercises & Assignments	<u>4 hours</u>
	11 hours

Note that students are expected to attend all lectures. Failure to do so will, most likely, limit your ability to perform well in any of the assessment components.

Readings

The following textbook is mandatory to buy (available at Vicbooks www.vicbooks.co.nz):

Elmasri and Navathe (2010): Database Systems: Global Edition. 6th Edition. Pearson.
ISBN: 9780132144988 - ISBN10: 0132144980

Materials and Equipment

- Lectures: Students are expected to prepare for lectures by reading the relevant book chapters in advance. The chapters must be reviewed again after the lectures. Each chapter of the textbook contains exercise questions that help to validate and deepen your knowledge of the subject. It is recommended to attempt answers to all these questions. This will result in an excellent preparation for the weekly class tests.
- Workshops: The time in the workshops is mainly used to make progress on your lab assignment. Please double-check that you do have a valid computer account. You must use the Standard Virtual PC environment to work on your project. This environment can be accessed in any SIM Lab. You are encouraged to ask for feedback regarding the progress on your lab assignment during the workshop hours. The software required for the lab assignment is provided within the Standard Virtual PC environment.

Assessment Requirements

The assessment is based on the following individual components:

Assessment Component	Date and Time	Learning Objectives	Contribution to Final Grade
Weekly Class Tests	Each week during lectures	LO1, LO2, LO3, LO4, LO5	60.00%
Lab Assignment	27 May, 5pm (due)	LO2, LO3	40.00%
			100.00%

The guidance rubrics for the marking of the assessment components are as follow:

Marking Rubric for Weekly Class Tests

Topic	Assessment		
	Exemplary	Satisfactory	Unsatisfactory
Database System Concepts and Architecture. LO1, LO4, LO5	Identified DBMS architecture is appropriated for the problem at hand. A strong justification is provided.	Identified DBMS architecture is appropriated for the problem at hand. The justification is weak.	Identified DBMS architecture is not appropriated for the problem at hand.
Relational data model and relational database constraints. LO1, LO2	Constraints and update operations are correctly identified and applied.	Most of the constraints and update operations are correctly identified and applied.	More than half of the constraints and update operations are incorrect or missing.
SQL data definition, constraints and updates LO2, LO3	Appropriate SQL DDL statements. Keys and referential triggered actions are correctly specified.	SQL DDL statements have minor mistakes. Some keys and referential triggered actions are incorrectly	Few correct SQL DDL statements. Keys and referential triggered actions are mostly incorrect or

		specified.	missing.
Basic and Advanced SQL Queries LO2	The SQL syntax is correct. The SQL statement expresses the given query.	The SQL syntax is incorrect, but the statement expresses the given query.	The SQL statement does not express the given query.
Formal Relational Languages LO2, LO5	Good understanding of the relevance of these languages and their practical implications. Correct query result provided.	Basic understanding of the relevance of these languages and their practical implications.	No understanding of the relevance of these languages and their practical implications.
SQL application programming LO3, LO5	Clear understanding of the different approaches to database programming. Can determine the best approach for a given scenario.	Basic understanding of the different approaches to database programming. Can mostly determine the right approach for a given scenario.	Limited understanding of the topic. Cannot determine the right approach for a given scenario.
Basic ER Modeling LO1	The ER schema and ER diagram faithfully model the provided scenario. Key attributes and structural constraints are well specified.	The ER schema and ER diagram adequately model most parts of the provided scenario. Some key attributes and structural constraints are missing.	The ER schema and ER diagram do not model the provided scenario.
Advanced ER Modeling LO1, LO5	Excellent criteria to apply Enhanced ER concepts as required by the modeling task.	Good criteria to apply Enhanced ER concepts as required by the modeling task.	No clear criteria to apply Enhanced ER concepts.
Mapping a Conceptual Design into a Logical Design LO1, LO2	Correct mapping of ER and EER diagrams into relational schemas	Not perfect mapping, but shows understanding of the process	Little knowledge of the process.
Design Guidelines for Relational Schemas LO1	Correct assessment of the quality of a relational schema design	Some relevant considerations regarding the quality of the schema design are missing.	The quality of the schema design is not correctly assessed.
Normalization LO1, LO2	Can identify the normal form of a relation and apply normalization to decompose it.	Can identify the normal form of a relation, but the process of normalization is not applied correctly.	Cannot identify the normal form of a relation.
Database Security LO4	All discretionary privileges are correctly enforced.	Some of the discretionary privileges are correctly enforced.	Few discretionary privileges are correctly enforced.

Marking Rubric for Lab Assignment

Topic	Assessment		
	Exemplary	Satisfactory	Unsatisfactory
SQL Queries (20 SQL exercises which are related to a provided sample database. Each query will be run against the sample database as it is submitted, without any alteration or checking) LO2	-	If the result is exactly the expected relation. The SQL query is correctly explained.	The result of the query is not the expected relation.
SQL Programming Using PHP LO3	PHP scripts work as required and are well documented. User interfaces are effective. Database created and populated as required. SQL queries and updates work as required.	PHP scripts work mostly as required and are documented. User interfaces are not very effective. Database created and populated as required. SQL queries and updates work mostly as required.	PHP scripts do not work as required and are poorly documented. User interfaces are not effective. SQL queries and updates do not work as required.

Your assessed work may also be used for quality assurance purposes, such as to assess the level of achievement of learning objectives as required for accreditation and audit purposes. The findings may be used to inform changes aimed at improving the quality of FCA programmes. All material used for such processes will be treated as confidential, and the outcome will not affect your grade for the course.

Examinations

There is no final examination.

Penalties

In fairness to other students, extensions to the lab assignment deadline is not ordinarily granted. For the same reason, failure to sit the weekly class tests will automatically result in zero marks for the test. In the event of bereavement or prolonged illness affecting your ability to meet the lab assignment deadline or sit a class tests, discuss your situation with the course coordinator as soon as you are able to. You must verify your claim, e.g., produce a medical certificate. By doing so, you agree to the course coordinator seeking verification of your documentation. Extensions to the lab assignment or alternative arrangements for a test will only be granted under these conditions.

Practicum Arrangements

Workshop Allocation Procedure

Sign-up to your workshop slot will be available on the sign-up system:

<https://signups.victoria.ac.nz>

You must sign up for the workshop sessions yourself in the first week. Please contact Xiaoyi if you have not signed up at that time. You must select a time slot that fits your timetable and enter your name on only one of the lists provided. Once you have been allocated to a workshop, it is your responsibility to know where and when your workshop is scheduled.

Hints:

- Make sure you consult your personal timetable, so that your selected workshop time does not clash with other classes. It will not be easy to change your selection once accepted.
- If your name appears on more than one workshop list, the senior tutor reserves the right to put you in the workshop of her choice.
- When a list is full, it is removed from circulation. As the names are entered on a first-come-first-served basis, it is strongly recommended that you attend to this early, otherwise you may be allocated to a less desirable time slot.
- If you have any serious problems about the allocations, see the senior tutor.

Mandatory Course Requirements

Students must meet the following requirements in order to pass the course:

- be correctly enrolled in the course, and
- obtain at least 50 percent of the maximum number of available marks.

As pointed out before, your attendance of lectures is required to perform well in all the assessment components of this course.

Class Representative

A class representative will be elected in the first class, and that person's name and contact details made available to VUWSA, the Course Coordinator and the class. The class representative provides a communication channel to liaise with the Course Coordinator on behalf of students.

Communication of Additional Information

All formal notices relating to this course will be posted on the Blackboard system

<http://blackboard.vuw.ac.nz>

You are expected to check for announcements on Blackboard on a regular basis. Please contact the Senior Tutor in order to have a user ID and a password to log in.

Use of Turnitin

Student work provided for assessment in this course may be checked for academic integrity by the electronic search engine <http://www.turnitin.com>. Turnitin is an on-line plagiarism prevention tool which compares submitted work with a very large database of existing material. At the discretion of the Head of School, handwritten work may be copy-typed by the School and subject to checking by Turnitin. Turnitin will retain a copy of submitted materials on behalf of the University for detection of future plagiarism, but access to the full text of submissions will not be made available to any other party.

For the following important information follow the links provided:

Academic Integrity and Plagiarism

<http://www.victoria.ac.nz/home/study/plagiarism.aspx>

General University Policies and Statutes

Find key dates, explanations of grades and other useful information at www.victoria.ac.nz/home/study.

Find out about academic progress and restricted enrolment at www.victoria.ac.nz/home/study/academic-progress.

The University's statutes and policies are available at www.victoria.ac.nz/home/about/policy, except qualification statutes, which are available via the Calendar webpage at www.victoria.ac.nz/home/study/calendar (See Section C).

Further information about the University's academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at www.victoria.ac.nz/home/about_victoria/avcacademic/default.aspx

AVC (Academic) Website: information including: Conduct, Academic Grievances, Students with Impairments, Student Support

http://www.victoria.ac.nz/home/about_victoria/avcacademic/Publications.aspx

Faculty of Commerce and Administration Offices

<http://www.victoria.ac.nz/fca/studenthelp/>

Manaaki Pihipihinga Programme

http://www.victoria.ac.nz/st_services/mentoring/