SCSSE
School of Computer Science and Software Engineering
Faculty of Informatics

MCS9235  Databases
Subject Outline
Spring Session 2008

Head of School – Professor Philip Ogunbona, Student Resource Centre, Tel: (02) 4221 3606

GENERAL INFORMATION

Subject Coordinator
Associate Professor Yi Mu
Telephone Number: 4221 5228
Email: ymu@uow.edu.au
Location: 3.218

Associate Professor Mu’s consultation times during session:
Day    Time
Monday 13:30 - 15:30
Wednesday 13:30 - 15:30

Lecturer
Ms Gene Awyzio
Telephone Number: 4221 4090
Email: gene@uow.edu.au
Location: 3.106

Lecturer’s consultation times during session:
Day    Time
Monday 11:30 – 13:30
Tuesday 14:30 – 15:30
Friday 11:30 – 12:30

Subject Organisation
Session: Spring Session, Wollongong Campus
Credit Points: 6 credit points
Contact hours per week: 3 hours lectures, 2 hours Computer lab
Lecture Times & Location:
Monday: 08.30 – 10.30 at 35.G45
Wednesday: 08.30 – 09.30 at 20.LT3

Tutorial Day, Time and Location can be found at: http://www.uow.edu.au/student/timetables/index.html

Students should check the subject's web site regularly as important information, including details of unavoidable changes in assessment requirements will be posted from time to time via e-Learning space http://www.uow.edu.au/student/lol. Any information posted to the web site is deemed to have been notified to all students.

Subject Description
This subject investigates three major areas of modern database systems: 1. design of relational databases 2. programming of relational databases 3. concurrency control and data recovery in database systems. Topics will include: Introduction to conceptual database modelling; Principles of relational
database model; Structured Query Language (SQL) and its procedural extensions (PL/SQL, Embedded SQL, JDBC); Database server programming; Normalisation of relational databases; and Transaction management and recovery in database systems

**Objectives**

A student who successfully completes this subject should be able to:
(i) explain the principles of relational database model,
(ii) design and implement a simple relational database,
(iii) use a number of software tools to implement database applications,
(iv) program a relational database server,
(v) normalise a relational database,
(vi) explain the principles of distributed databases and design a distributed database,
(v) explain the principles of transaction management and database recovery mechanisms

**Graduate Qualities**

All Schools in the Faculty of Informatics have adopted the UOW Graduate Qualities. On completion of their course graduates will be informed, independent learners, problem solvers, effective communicators and responsible. Further information can be found at http://www.uow.edu.au/about/teaching/qualities/.

**Attendance Requirements:**

It is the responsibility of students to attend all lectures/tutorials/labs/seminars/ practical work for subjects for which you are enrolled. It should be noted that the amount of time spent on each 6 credit point subject should be at least 12 hours per week, which includes lectures/tutorials/labs etc.

Satisfactory attendance is deemed to be attendance at approximately 80%* of the allocated contact hours. Attendance rolls will be kept for lectures, tutorials and laboratories. If you are present for less than 80%* you need to apply for special consideration, otherwise a fail grade will be recorded.

**Method of Presentation:**

In order to maximize learning outcomes, it is strongly recommended that students attend all lectures. This subject comprises of 3 hours lectures and 2 hours of computer labs.

**Lecture Schedule:**

A proposed Lecture schedule for the subject is as follows:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Course information:</strong> Database Management Systems (DBMS) what is it and why do we need it? <strong>Database design:</strong> conceptual modeling.</td>
<td>Gene Awyzio</td>
</tr>
<tr>
<td>2</td>
<td><strong>Database design:</strong> conceptual modeling (cont.) relational database model, logical modeling.</td>
<td>Gene Awyzio</td>
</tr>
<tr>
<td>3</td>
<td><strong>SQL:</strong> data definition statements, data entry statements, data manipulation statements.</td>
<td>Yi Mu</td>
</tr>
<tr>
<td>4</td>
<td><strong>SQL:</strong> queries</td>
<td>Yi Mu</td>
</tr>
<tr>
<td>5</td>
<td><strong>SQL:</strong> queries [cont.], relational views,</td>
<td>Yi Mu</td>
</tr>
<tr>
<td>6</td>
<td><strong>Indexing:</strong> data definition statements <strong>System Catalog:</strong> database repositories</td>
<td>Gene Awyzio</td>
</tr>
<tr>
<td>7</td>
<td><strong>PL/SQL:</strong> data structures, control structures</td>
<td>Yi Mu</td>
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<tr>
<td>8</td>
<td><strong>PL/SQL:</strong> programming with cursors <strong>Embedded SQL:</strong> SQL+ C/C++</td>
<td>Yi Mu</td>
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<tr>
<td>9</td>
<td><strong>JDBC:</strong> SQL + Java <strong>Database applications:</strong> simple HTML interfaces</td>
<td>Yi Mu</td>
</tr>
<tr>
<td>10</td>
<td><strong>Database design:</strong> anomalies, functional dependencies, normal forms</td>
<td>Gene Awyzio</td>
</tr>
</tbody>
</table>
### Database design:
- Database design based on data dependencies

**Gene Awyzio**

### Concurrency control in database systems:
- Database transactions, serializability, 2 phase locking protocol, optimistic protocols, isolation levels

**Gene Awyzio**

### Summary

**Gene Awyzio/Yi Mu**

Changes to the above schedule will be posted via e-Learning space http://www.uow.edu.au/student/lol. Any information posted to the web site is deemed to have been notified to all students.

**Subject Materials:**
Any readings/references are recommended only and are not intended to be an exhaustive list. Students are encouraged to use the library catalogue and databases to locate additional readings

**Textbook(s):**

**Other Resources:**
**Equivalent textbooks** (in the alphabetical order):

**SQL textbooks** (in the increasing order of complexity and sophistication):

**Oracle DBMS manuals available on** [https://sai.uow.edu.au/oradocs](https://sai.uow.edu.au/oradocs)

**Oracle DBMS textbooks available on Safari Bookshelf (O'Reilly Network), access through a link to Proquest Safari website**

All other materials available on e-Learning.
Assessment:
This subject has the following assessment components.

<table>
<thead>
<tr>
<th>ASSESSMENT ITEMS &amp; FORMAT</th>
<th>% OF FINAL MARK</th>
<th>DUE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>6%</td>
<td>Week 5</td>
</tr>
<tr>
<td>The tasks of this assignment include: the conceptual modeling, logical database design, application of CASE system to logical database design, data definition and data manipulation statements of SQL. Submission format: hardcopy</td>
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<tr>
<td>Assignment 2</td>
<td>8%</td>
<td>Week 8</td>
</tr>
<tr>
<td>The tasks of this assignment include: construction of queries in SQL, advanced data definition and data manipulation statements of SQL, creating relational views, indexing relational tables, accessing data dictionary, and elementary programming in PL/SQL Submission format: hardcopy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assignment 3</td>
<td>6%</td>
<td>Week 11</td>
</tr>
<tr>
<td>The tasks of this assignment include: advance programming in PL/SQL (stored functions and stored procedures, using cursors), Embedded SQL programming, JDBC programming and implementation of simple HTML based database application. Submission format: hardcopy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class test</td>
<td>20%</td>
<td>Week 11</td>
</tr>
<tr>
<td>Covers Assignment 1 and Assignment 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Examination</td>
<td>60%</td>
<td>Examination Period</td>
</tr>
</tbody>
</table>

Notes on Assessment:
All assignments are expected to be completed independently. Plagiarism may result in a FAIL grade being recorded for that assignment.

Electronic Submission of Assessment Items:
Unless otherwise notified by the subject coordinator, all written assignments must be submitted electronically.

Other Procedures for the submission of assessment items:
In addition to electronic submission students are required to submit assignments in hard copy to their tutor.
All assignments will be returned within 2 weeks of their submission.
Assignments are to be submitted personally to your tutor during laboratories. All submissions must be accompanied by a standard Assignment Cover Sheet available from the School office. No assignments will be accepted without Assignment Cover Sheet. The students must collect a submission receipt...
signed by a tutor. All assignments must be submitted as hard copy only. No part of an assignment will be accepted as electronic mail or fax.

Electronic release of Assessment Items
Specifications of all assignments will be released in electronic format ONLY. There will be NO printed hardcopies distributed during lecture or lab classes. The students will collect the electronic copies of specifications on E-Learning.

Class test
The written class test will be held in Week 11, 8th October, from 8:30 am to 9:30 am in Room 20.3. The class test is worth 20% towards the final marks. The class test will cover the scope of Assignment 1 and Assignment 2.

Remarks on Assessment
(a) As assignments are to assess a student's understanding of course material, each assignment must be solved using only material covered up to that point in the course (unless otherwise stated in the question).
(b) Students who copy an assignment will receive zero for that assignment. This also covers assignments which may be the product of community effort by several students. Working together is acceptable, but the final assignment must be the work of the individual student, as assessment is a measure of your ability.
(c) Programs that do not compile due to the syntax errors will receive no marks, and may still be commented upon. Proper documentation and program style are needed in the assignments to receive the full marks.
(d) The specifications of assignments and sample solutions will be available on E-Learning.
(e) Students should check the web page regularly for changes and updates to subject information together with assessment marks.

To be eligible for a Pass in this subject a student must achieve a mark of at least 40% in the Class Test and 40% in the final exam. Students who fail to achieve this minimum mark will be given a TF (Technical Fail) for this subject.

Procedures for the return of assessment items:
The annotated copies of evaluated assignments will be personally returned to the students after one week from the respective submission date. The assignments may be collected by the students during the laboratory classes or during the lecturer’s office hours. The enquiries about the assignment marks can only be made to the tutors during laboratory class times or to the lecturer during the lecturer’s office hours. The enquiries about the assignment marks can only be made in a period of time of maximum 1 week after the evaluated copies of assignment are handed out. After 1 week of “enquiry period”, no more marks will be changed. The assignment marks will be available on SOLS on the assignment return day.

Penalties for late submission of assessment items:
Penalties apply to all late work, except if special consideration has been granted. Late submissions will attract a penalty of 25% of the assessment mark per day including weekends. Work more than four (4) days late will be awarded a mark of zero.

Supplementary Exams
Supplementary Exams will be dealt with in accordance with student academic consideration policy (http://www.uow.edu.au/handbook/courserules/specialconsideration.html) 6.2 Timing of Supplementary Exams.

While the School normally grants supplementary exams when the student does not sit the standard exam for an acceptable reason, each case will be assessed on its own merit and there is no guarantee a supplementary exam will be granted. If a supplementary exam is granted, you will normally be notified via SOLS Mail the time and date of this supplementary exam. You must follow the
instructions given in the email message.  
Please note that if this is your last session and you are granted a supplementary exam, be aware that your results will not be processed in time to meet the graduation deadline.

Special Consideration Policy  
The School recognises that it has a responsibility to ensure equity and consistency across its subjects for all students. Sometimes, in exceptional circumstances, students need to apply for student special consideration in order to complete all assessable work.

The University applies strict criteria to the granting of special consideration. Before applying for student special consideration, students should carefully read the University’s policy which can be found at: http://www.uow.edu.au/handbook/courserules/specialconsideration.html

As an example: If a student requires an extension of time for the completion of an assignment this may be granted in certain circumstances. A request for an extension must be made to the Subject Coordinator via SOLs before the due date.

Plagiarism  
When you submit an assessment task, you are declaring the following:

1. It is your own work and you did not collaborate with or copy from others.
2. You have read and understand your responsibilities under the University of Wollongong's policy on plagiarism.
3. You have not plagiarised from published work (including the internet). Where you have used the work from others, you have referenced it in the text and provided a reference list at the end of the assignment.

Students must remember that:

Plagiarism will not be tolerated.  
Students are responsible for submitting original work for assessment, without plagiarising or cheating, abiding by the University’s policies on Plagiarism as set out in the University Handbook under University Policy Directory and in Faculty handbooks and subject guides.  
Plagiarism has led to the expulsion from the University.

Student Academic Grievance Policy  
The School aims to provide a fair, equitable and productive learning environment for all its students. The Student Academic Grievance Policy seeks to support the achievement of this goal by providing a transparent and consistent process for resolving student academic grievances.

Any student who has a grievance over a result should obtain a Faculty of Informatics Appeal Against Decision or Action Affecting Academic Experience form from the Informatics Student Enquiry Centre. (http://www.uow.edu.au/content/groups/public/@web/@inf/@faculty/documents/doc/uow017433.pdf) The student should firstly take the form to the marker/lecturer to discuss the matter and, if the student is still not satisfied, s/he should take the next step as outlined on the form.

Once the grievance has been considered by the Faculty, if the student still feels the situation has not been fully resolved s/he may consult the Dean of Students. However, the Dean of Students can have no input into the academic judgment of the lecturer and can only review the grievance to ensure proper procedure has been followed.

Relevant University Policies, procedures and students services:
For more information students must refer to the Faculty handbook, online references or consult the UOW policy in full at http://www.uow.edu.au/handbook/courserules/studacgrievpol.html which contains a range of policies on educational issues and student matters.
This outline should be read in conjunction with the following documents:

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<th>Code of Practice - Teaching and Assessment</th>
<th>Code of Practice - Students</th>
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<tr>
<th>Code of Practice-Honours</th>
<th>Acknowledgement Practice Plagiarism will not be tolerated:</th>
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<table>
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<tr>
<th>Key Dates</th>
<th>Special Consideration Policy:</th>
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<th>Academic Grievance Policy (Coursework and honours students)</th>
<th>Non-Discriminatory Language Practice and Presentation</th>
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<th>Occupational Health and Safety</th>
<th>Intellectual Property Policy</th>
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<th>Human Research Ethics:</th>
<th>Rules for student conduct and discipline:</th>
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<tr>
<th>Information Literacies Introduction Program</th>
<th>Informatics Faculty Librarian, Ms Annette Meldrum, phone: 4221 4637, email: <a href="mailto:ameldrum@uow.edu.au">ameldrum@uow.edu.au</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.uow.edu.au/student/attributes/ilip/">http://www.uow.edu.au/student/attributes/ilip/</a></td>
<td>Informatics Faculty Librarian, Ms Annette Meldrum, phone: 4221 4637, email: <a href="mailto:ameldrum@uow.edu.au">ameldrum@uow.edu.au</a></td>
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<th>Student Support Services:</th>
<th>SCSESE Internet Access &amp; Student Resource Centre</th>
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<tr>
<th>SCSESE Computer Usage Rules</th>
<th>SCSESE Subject Outlines</th>
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